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SYMPOSIUM ON SYPHILIS IN ITS ECONOMIC ASPECTS

HANDLING OF THE VENEREAL PROBLEM IN UNITED STATES ARMY IN THE PRESENT CRISIS *

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If we could handle venereal diseases as we can other infectious diseases they would offer a relatively simple sanitary problem. We know all of the facts necessary for their sanitary control. We know their causes, their incubation periods, and their modes of transmission; and these facts so far as they are physical facts offer no practical obstacles to sanitary control. But for all that some sanitarians may say, the venereal diseases cannot be handled simply as a sanitary problem. No effective policy is practicable which would isolate them like measles or scarlet fever; or quarantine them like smallpox; or, even in the present state of sentiment, get them successfully reported. They involve factors peculiar to themselves—social, personal and moral factors that reach into the most insistent and secret impulses of life. These facts make the problem of their control extremely difficult; make it a social as well as a sanitary problem and, without question, the most complex and difficult of social problems.

The Army program has taken full cognizance of both phases of this problem. It can readily be seen that they require very different treatment, and that in coordinating the forces necessary to attack them in a practical campaign, there may be need for tact, judgment, tolerance and sympathetic cooperation. In this attempt the dangers are many of cross purposes, of exaggeration of the importance of one part of the program over the other, of irreconcilable conflicts between radicals on the two sides, especially of having the moral propaganda run away with the medical. We all know to what extremes the sexual moralist can go. How unpractical, how intolerant, how extravagant, even how unreasoning, if not scientifically dishonest, he can be. On the other hand, the medical man can make no boasts of the cool, dispassionate, scientific intelligence that he has brought to bear on the problem. He is usually an infant in the knowledge of the epidemiologic facts of the venereal diseases and of the work that has been done on them as a sanitary problem. If he does not content himself with a mild mistrust of social and moral propagandas for influencing their prevalence, he is apt to have opinions about what he fondly regards as the practical aspects of the sexual problem, which are not the less vigorous because he has given very little serious study to the subject.

A very practical proposition has been to avoid the danger of being carried away by extremes in policy in either direction. Up to the present time, however, this danger has not actually obtruded itself.

METHODS OF PREVENTION

All of the methods of attack on the venereal diseases may be grouped into four classes: (*a*) Social measures to diminish sexual temptation; (*b*) education in regard to venereal diseases; (*c*) prophylactic measures against venereal diseases, and (*d*) medical care.

SOCIAL MEASURES

Social measures to diminish sexual temptation divide themselves in two sorts of activities: (1) the repression of prostitution and of the liquor traffic, and (2) the provision of proper social surroundings and of opportunities for recreation and diversion.

However unjust it may seem to some, the repression of prostitution and of the liquor traffic are logically classed together. In the spread of venereal diseases they go together. The liquor traffic in numerous ways is the fosterer of prostitution. And the effect of alcoholic liquor is a factor that cannot be overlooked in the diffusion of venereal diseases, because of the inhibition which it produces in those restraining influences that under ordinary conditions prevent man's giving way to his impulses.

It has been recognized, then, by the Army that keeping liquor away from soldiers is of fundamental importance in the program of attack on the venereal diseases. It is not necessary to go into the measures which the government has enacted to keep alcoholic liquors away from the soldiers. It may be said, however, that these measures are being enforced, and that the amount of alcohol consumed by the present Army of the United States is negligible. There is an occasional bootlegger, and a small amount of liquor gets to the soldier in devious ways; but it is, in the total, inappreciable. For all practical purposes the United States Army at the present time is a body of total abstainers. This fact is undoubtedly a very great factor in keeping down in the Army the incidence of venereal diseases.

* Read before the Section on Dermatology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

* Because of lack of space, this article is abbreviated in THE JOURNAL. The complete article appears in the Transactions of the Section and in the author's reprints.

The control of the liquor traffic and of prostitution has been one which has called for cooperation between federal and local authorities. Of course, inside cantonments and other government reservations the federal authorities are supreme. In addition to this federal area, a district has been provided by law, consisting of a zone, at present designated by the Secretary of War to be 5 miles, around each of the cantonments. In these zones the federal authorities are in position to control completely the liquor traffic and the various conditions which encourage prostitution. Even, therefore, where cantonments are situated near districts presenting the worst social conditions, the government is able to make prostitution difficult, and is very effectively doing it.

Outside the zones, the federal government can still exert great influence as regards these conditions, and, as necessity compels, is doing this. But for the most part, when it comes to the question of controlling prostitution and liquor traffic outside the zones, reliance has been placed in great measure on the local civil authorities. I think it can be said with considerable satisfaction that communities have almost without exception realized their responsibility in these matters and have responded as well as the most sanguine could have asked in their efforts to improve them. Cities have cleaned up in the last few months that have never cleaned up before; to such an extent is this true, that conditions in regard to prostitution in this country are the best today that they have ever been.

The cause of this is the awakened public conscience; the determination of our people to do the best they can for their soldiers. To attain this, much has been done in directing the public conscience, in discovering the conditions that need correcting, and in showing the public useful avenues of work.

In this ticklish business the Army is not trusting to well meaning amateurs alone. It has its own trained forces in the field, recruited largely from the experienced workers of such organizations as the American Social Hygiene Association. Vice conditions are minutely studied, and are known with a fulness that is surprising. Often, as a result of this, the condition of prostitution in a community has been revolutionized for the better almost in a day. More often the improvement is less magical. But the pressure is everywhere, most about camps, and is resulting in rapid betterment.

The interest of the intelligent public, not merely of the intellectual classes, but of the every-day citizen, in the menace of venereal diseases, has been accumulating in the last few years. The war has stimulated this to a point at which you can get the public to support any policy concerning them that is sane and useful. This makes the present time a unique opportunity for attacking the problem, and sanitarians are showing a disposition to utilize it. Everywhere the work for the control of venereal diseases is stimulated and many new approaches to the problem are being developed.

You can hardly find a district where there is not some manifestation of this activity. New and better ordinances and sanitary regulations in regard to venereal diseases are being enacted, and more intelligence is being applied to their enforcement. Municipal clinics for the treatment of venereal diseases are being established. Established clinics are being reorganized to do better work. Hospitals for venereal diseases are being provided; even, in some places, isolation hospitals for venereal cases are in operation. Evidence of this sort of activity is found everywhere from the Atlantic to the Pacific. There has never been any systematic widespread attack on venereal diseases in the country before. There is now an almost universal and, for the most part, intelligent attack carried on.

The state councils of defense have generally taken up the work in their various states. Private organizations interested in public welfare are helping the campaign in innumerable communities. The aggregate, therefore, of work which is being contributed by forces not directly controlled by the federal government is not easy to be estimated.

The second group of measures to diminish sexual temptation are embodied in the provision of proper social surroundings and recreations. Applied to the Army, this means the furnishing of healthy social conditions and of opportunities for diversion for the soldiers at periods of leisure in camp, or when they are traveling, or on leaves of absence outside of their camps. In the camps the government has through the Commission on Training Camp Activities pursued a policy which, it seems to me, is of the highest intelligence in regard to the provision of recreations. The situation has been conceived to be much the same as that of a college community, where there are a large number of young men brought together, who have recently been detached from their familiar home surroundings; and it has been handled with college activities as the example to be followed. All of the wholesome forms of play which constitute the familiar recreations of college life have been included, and are encouraged and supported. The effort is to create the same sort of a class spirit among the men; to get them interested in their diversions and to excite in them a pride in their sports as in their work.

In furnishing proper social surroundings and facilities for recreation in the camp, the authorities have availed themselves of the invaluable experience of organizations which have been working so long in these fields in civil life, such as the Y. M. C. A., the Knights of Columbus and the Y. W. C. A. These organizations are not only doing incalculable work for the soldier in the cities; they are doing a greater one in the camps, where they have adapted themselves to military conditions.

Outside the cantonments and the zones, there has been an appeal to the civil population to add their part in this work. I think you are all more or less familiar with the cordial response which the public has given to this appeal. Hardly a community (no community that I know of) has failed to respond to this appeal to aid. What some communities have done amounts to examples of almost illimitable hospitality.

EDUCATION

The same civil agencies that have been working against prostitution have been active in the campaign of education of the public in sexual matters and in the dangers of venereal diseases. Education as to the dangers of venereal diseases has been a part of the general campaign. While the work of education has not been as extensive among the civil population as it has been among the soldiers, it has been by the same methods; the aggregate amount of it is very

large and is undoubtedly doing a very practical amount of good. Nor has this campaign of education in the danger of venereal diseases been confined to the boys. It has been extended to the girls; and such organizations as the Young Woman's Patriotic League are reaching out to the girls; telling them the danger of venereal diseases and fostering in them a sense of their responsibilities in these matters. The General Federation of Women's Clubs, the Women's Christian Temperance Union, the Y. W. C. A.—such women's organizations as these are giving their powerful support to this work.

When it comes to the soldiers, the work of education is systematic and so thorough that it reaches every man. All of the agencies that have been mentioned already are lending their cooperation in this work. The work is guided and largely done by the War Department Commission on Training Camp Activities and the Social Hygiene Section of the Surgeon-General's Office. Instruction is given by lectures, by pamphlets, and by exhibits and moving pictures. But reliance is not placed solely on measures of general instruction.

Lectures and exhibits and pamphlets for the soldiers in general serve a useful purpose, but they do not reach the soldier that is most in need of them. To reach the soldier in the way that is unfailing and that makes a real impression on him is through his company commanders—the men from whom he takes his orders, and to whom he naturally looks for guidance. Through this channel pamphlets are distributed to him that give safe and unsensational information. But much more telling than this, company officers, both line and medical, give lectures to their men on sexual matters and the danger of venereal diseases. Every soldier is instructed on this subject. This is not a matter left to the volition of the officer; it is a matter concerning which he is under orders and the performance of this duty is seen to by checking up as in other important matters.

It is a difficult thing to get a good popular lecture to young men on sexual matters. In one quarter we get the maudlin; in another the extravagant, sensational and untruthful; in another the unreasonable and impractical; and even when the lecturer is sane, and honest, and wants to tell the truth, it is hard to get actual knowledge of the subject, and harder still to put such a lecture into form. To overcome, as far as possible, these difficulties, company officers are provided with full lectures on these subjects which they can use as such or as a basis for lectures of their own.

The lectures on sexual hygiene and venereal diseases given by company officers to their men are not inane, pseudomoral stuff. They are plain, serious, instructive talks given by practical men. These lectures reach all of the men; the two million men now under arms for the United States have been instructed more systematically and probably more intelligently than any other large body of men have ever been instructed in sexual and venereal subjects. It is not making saints of them; but it is doing a great deal in saving them from venereal diseases.

SEGREGATION OF PROSTITUTES

It will doubtless be noticed that in this program for the repression of prostitution nothing has been said about segregation, and that no part of it includes either the examination or certification of prostitutes. In the program everything possible is tried to discourage prostitution. It is a part of the policy to stimulate activity in providing adequate care of venereal diseases among the civil population, to the end, for one reason, that the numbers of venereal disease "carriers" shall be reduced as much as possible. There has been a very noticeable access of energy in the public care of venereal diseases as a result of the whole program that we have been considering. But the segregation of prostitutes and the regulation of prostitution in the Continental sense, that is, the examination of prostitutes, their certification and their toleration in definite districts, have not been included in this program, because they have not been regarded as advantageous.

In the attempt to coordinate social and medical forces in an attack on venereal diseases there is danger that the social forces may be allowed to overshadow and to cause the neglect of proper medical measures. They are so appealing to the moral and religious ideals of human nature, while the medical side has no such call; and the moral propagandist is apt to be intolerant of practical considerations.

There is always the possible danger of an unreasoning propagandist trying to run away with the situation. The fears of this were well expressed by Colonel Lyster[1] of the Army in an article on venereal diseases and the war. He says:

> "Now as to our new Army and the future: Higher rates will probably prevail for some time, but hope is backed by knowledge that we have the means, if we can apply them, of controlling this great producer of nonefficiency in armies.
>
> "The greatest enemy to its [the Army's] health is venereal diseases. A continuation of the orders and methods successful in the Army from 1908 to date will make a successful answer to that challenge of disease. But no misleading and impractical fanatics must be permitted to have a hand in this question of national efficiency."

As far as I can sense the situation this danger has not yet materialized.

The two parts of the program have not proved unworkable together, and the forces behind the social program have not minimized the importance of or interfered with the effective administration of the medical program.

MEDICAL PROGRAM

The second division of the program is the medical.

The first part of this is prophylaxis to prevent infection after exposure. This, in the opinion of venereologists, is the crucial part of any program to reduce the prevalence of venereal diseases; omit it and you have omitted the most important single practical weapon we have for fighting this plague.

This part of the program is in universal effect in the Army and care is taken to see that it is thoroughly carried out. Venereal prophylaxis is a part of the duty of every regimental infirmary and of every other infirmary that has in its care the health of a unit of soldiers. The regimental infirmaries do most of this work and its conduct in the regimental infirmaries may be taken as an illustration of it in general. Everything for giving prophylactic treatment is always accessible in every regimental infirmary. The medical officers are responsible for it and it is carried out by specially trained noncommissioned officers. As far as

1. Lyster, William: Venereal Disease and the New Army, THE JOURNAL A. M. A., Oct. 13, 1917, p. 1257.

possible selected men are chosen for these positions. I have inspected a good many regimental infirmaries and I have been impressed by the superior grade of these noncommissioned officers. Such an officer is constantly on duty and the returning soldier can get prophylactic treatment at any time in the twenty-four hours that he applies for it. This is a matter of general policy and is checked up by medical inspectors. It is seen to as far as possible that the conduct of prophylactic treatment is carried out seriously, without allowing an atmosphere of levity or obscenity to creep in.

The necessity for medical prophylaxis is instilled into the soldiers' minds. They are universally told that it is not a sure preventive of infection; that the sooner it is applied the more likely it is to be effective; and that after eight hours it is likely to be ineffective. The taking of it, if exposed, is a matter of army regulation. If a man contracts venereal disease, he is not punished beyond losing his pay while the disease disables him for duty, provided he had prophylaxis after exposure. But if he contracts a venereal disease and has not, according to regulations, had prophylactic treatment, he is court-martialed for disobedience of orders and, if convicted, is punished.

Wherever I have been, there is invariable testimony to the value of medical prophylaxis. The number of cases of venereal infection that develops after prophylaxis is surprisingly small. I have visited several regiments where no such cases had developed since mobilization.

Among the measures which are regarded as prophylactic must be included two others; one is the loss of pay which, according to army regulations, disability from venereal disease entails; the other is the fortnightly physical inspections. Both of these, in force since 1912 (Lyster), are regarded by army authorities as very important measures in the reduction of venereal diseases.

MEDICAL CARE OF VENEREAL DISEASES

The second item in the medical program and the last item in the entire program is the medical care of those who are venereally infected. Necessarily the first step in putting into practical force the care of venereal diseases in the new Army was to obtain a group of competent specialists in their treatment. In going through the personnel of the medical reserve corps there was found a very considerable number of well trained specialists in genito-urinary, venereal and skin diseases. Among these were many of the best known men in the country in this field. The time of the great addition of soldiers to the Army was in September and October, when the National Guard and the National Army were mobilized in the thirty-one cantonments distributed over this country. Provision had suddenly to be made for the venereal care, as for the care of other diseases, of thirty-one cities, each containing a population of from 20,000 to 25,000 men between the ages of from 20 to 30 years.

It goes without saying that equally competent men were not obtainable for all these cantonments; but it can be said that at the time of the opening of each cantonment there was available in each, expert skill in venereal diseases. Since that time, as occasion has required, there have been added to the various camps whatever men trained in venereal diseases were asked for by commanding officers or necessity seemed to require. Necessarily there was confusion and lack of preparedness in material ways at the time of mobilization in the cantonments; for one cannot build thirty-one cities in three months and at the end of the time have them as complete and finished as though they had existed always. The men in charge of venereal diseases, however, for the most part have shown themselves equal to the situation and the exceptions are few in which those affected with venereal disease have not been able to get adequate care in the cantonment base hospitals.

In the planning of the base hospital of each cantonment, full provision has been made for venereal diseases. It is a part of the policy of the Surgeon-General that acute venereal disease shall be confined to the hospital until the acute infectious stages are past. This means that all cases of acute gonorrhea belong in the hospital and all cases of syphilis which have early active lesions.

It is difficult at times to get this policy carried out. In many divisions the division surgeon has seen the wisdom of this course and has taken his own initiative in putting it into force. In a few places it has been for a time impossible, because of epidemics of acute diseases which have had prior demands on all of the available hospital beds. The policy has been thoroughly promulgated by the Surgeon-General and attention is called to it wherever neglect of it is discovered. This is, in some respects, a new military policy with us. It is one which it is believed will justify itself. It has several arguments for it; one is the great advantage which it affords in gonorrhea of curing quickly and preventing its spread to the posterior urethra; another is the assurance which it gives of thorough early treatment of syphilis, and the rapidity with which the infectious stage is passed; a third, and a very great advantage, is the reduction in the danger of nonvenereal spread of these diseases.

An effort has been made to standardize as far as possible the handling of venereal diseases. The first item of this consists in the hospitalization of acute cases, which has been referred to. There has been no effort to hamper mature men in carrying out established methods of treatment, but their attention has been called to the fact that in the Army team work is desirable, that bizarre and original methods are not necessarily most effective, and that the methods recommended have borne the test of experience. In carrying out this policy a small manual of venereal disease has been issued which includes, in addition to the program of attack on venereal diseases, brief articles which represent present established methods of treatment of the various venereal diseases.

It is part of the program to provide in the base hospitals complete laboratory facilities for the care of venereal diseases. There is provided in each hospital a general laboratory in which Wassermann tests are to be made. It is also part of the Surgeon-General's policy that each venereal service in the base hospital shall have its own small laboratory, equipped for examination for spirochetes and bacteria and for urinalysis examination. These laboratory facilities exist now in most of the cantonments that I have visited; in some they have not been developed. But wherever it is found that they are lacking, their establishment is stimulated.

In addition to the cantonments, there are many other large camps in which the care of venereal dis-

eases is handled on the same plans as has been outlined for the cantonments.

It is part of the program to use the specialists in venereal disease in the division as instructors of other medical officers in venereal diseases. As a rule, the chief of a venereal service in a base hospital is the chief officer in venereal diseases. He is expected to be an instructor of other medical officers and his efficiency is partly gaged, not alone by the care which he gives his patients, but by the efficiency with which he develops his hospital organization, and the way in which he takes part in handling the venereal problem in the cantonment as a whole.

In order to increase efficiency in venereal diseases, three schools have been established for the intensive training of the less experienced men who are in this work. These schools are conducted by well known specialists in genito-urinary diseases and syphilis and skin diseases and are in centers furnishing large clinical material. The instruction furnished by these schools along with the experience that is being gained by the men in the venereal service of the various cantonments and camps, is, to say the least, keeping the men in this work from stagnating. There is little room for doubt that, in most instances, it is increasing the knowledge of the junior officers rapidly. By this means, and by the constant addition of specialists from private life who are coming into the medical reserve corps, it seems safe to believe that, as the demands on this service increase, we will be able to meet them with competent men.

The policy of handling the venereal diseases that I have outlined is that of the Surgeon-General, and, as far as it depends on central authority, it is efficiency carried out. Of course, the success of the medical care of venereal diseases varies greatly in the different cantonments. The organization of the Army, properly I think, gives large discretion to the division commander and similarly to the chief medical officer, who is the division surgeon.

The conduct of medical affairs in the cantonments, therefore, depends to a very large extent on the attitude of those in supreme authority; that is. (1) the commanding general in a cantonment; (2) the division surgeon, and (3) the commanding officer of the base hospital.

If either one of the first two, and the same is true to a less extent of the third, should be obstinate, opinionated and ignorant, and interfere, he could spoil the best efforts of competent chiefs of service under him. I know of no instance where this has been so flagrant as I have just indicated as possible, but I think it is true that there is considerable variations in the efficiency of venereal services due to variations in these commanding officers. Nevertheless, the efficiency of the venereal service is, in very large part, what the chief medical officer assigned to the service makes it. Some of the men taken from civil life are showing great originality and efficiency in this service.

To mention only a few of those whose work I have seen:

Major William W. Townsend at Camp Dix has developed a clinic in the base hospital that meets the most exacting requirements of what such a clinic should be.

Major J. Bayard Clark at Camp Lee showed the same sort of originality before he was called to similar work overseas.

Capt. Victor N. Meddis at Camp Zachary Taylor has developed a highly efficient and well run service.

Capt. Charles M. Williams at Camp Meade has approached the work from another side and has developed an original and most efficient system of looking after venereal diseases throughout the cantonment from division headquarters.

I mention these especially because they illustrate the fact that there is room for the personal equation, for initiative and originality. The various intelligent plans which are developed are all useful additions to our experience in this work; and, partly on account of this fact, large latitude is given to the chiefs in the development of their services. The men previously mentioned undoubtedly could not have made such good showing without the support of their superior officers, but it is equally certain that with the same superior officers less efficient men would have made no such showing. One gains the impression, indeed, that in spite of so-called government red tape, military routine—which the civilian physician seems to regard in the way the public looks at medical etiquette—the equipment of the various hospitals, as well as their competency in other directions to take care of their patients, usually depends on the personnel of its medical officers. Sometimes it is impossible to get the necessary things, but as a rule you find the supplies ready for work in the place which is under the man who either knows how to get easily the things he needs, or is persistent enough to keep after these things until he obtains them, no matter how many obstacles he encounters in the endeavor.

QUALITY OF TREATMENT VENEREAL PATIENTS ARE RECEIVING

Venereal diseases are as a whole receiving excellent attention in the cantonment hospitals. Of course, the same factors of personal equation come in here, and the quality of service furnished in venereal diseases varies with the men who are furnishing it. But the men in charge of this work in the hospitals are trained specialists of long experience, and, without exception as far as my knowledge goes, are applying themselves with the utmost zeal and devotion to it. I have had a considerable opportunity to judge of the quality of treatment they are giving their patients and I believe it is as good as is to be obtained in any other forty hospitals in the United States.

The place where patients with chronic gonorrhea and syphilis are likely to fail to get expert care is in the division as distinguished from the base hospital. The regimental surgeon must be a general practitioner while he is in that position. Adequate care of syphilis and of the chronic complications of gonorrhea eminently demand expert training, and this is not any more to be expected of the regimental surgeon than is special training in all of the other specialties. He also cannot have the special equipment necessary for it. It follows, therefore, that gonorrhea and syphilis should as far as possible be taken out of the care of the general medical officers. It is the policy of the Surgeon-General to send them to the hospital as freely as practicable, and everything possible is done to encourage the return of ambulatory cases to the hospital for such treatment as they need. It is also the policy to have a qualified officer detailed to the special duty of supervising all venereal matters, including the treatment of venereal cases throughout the cantonment. But in spite of this, the fact remains that the

weak point in the care of the soldiers' venereal diseases is the care he receives when he is on duty; and he is allowed to stay on duty often when it would ultimately be better for him and for the service, if he were nominally as well as actually sick and under expert care. This is often due to the attitude of the commanding line officer. He wants his men or he does not want them, and he has no use for the soldier who is taking half-days off to go to the hospital for treatment. There is room for much education here, and for the development of considerable more cooperation.

RESULTS

The venereal situation in the United States Army has been excellent for several years. This is the result of the effective policy in handling these diseases that has been developed by the medical department. The present situation in the Army, then, as far as it is favorable, is not the result of any new policy, but is due to the continuation of the Regular Army policy, with such additions as the new situations have seemed to indicate.

Of course, a marked increase in venereal diseases was feared in the present military situation. Such an increase always follows mobilization of new troops, and the conditions which this great increase in troops entail.

Between 1897 and 1900, which was the period that covered the Spanish-American War, the venereal rate went up from an average of 80 per thousand to 160.

As Colonel Lyster says of our new Army, "higher rates will probably prevail for some time."

In order to appreciate the situation now, it is worth while to consider the Army record for venereal diseases for several years past: The venereal rate of the Army previous to 1898 averaged about from 80 to 85 per thousand. This is no criterion on which to base the comparison with present rates, for then we had none of the present means of diagnosis, and much that is now recorded as syphilis at that time was not included. Colonel Lyster thinks under present conditions of recording syphilis, the rate for venereal diseases during that period would have been 110 per thousand or more. With the mobilization of new troops in the Spanish-American War in 1898 the rate suddenly doubled, going to 160 per thousand. The high rate then produced persisted after the War for thirteen years, varying between 180 and 160 per thousand until 1911. (The rates from 1905 until 1917, inclusive, are shown in the accompanying charts.) Between 1909 and 1911, an effective policy of handling venereal diseases in the Army was developed by the medical department. The most important features of this policy were the enactment of regulations which provided for loss of pay for disability from venereal diseases, weekly physical inspections, and venereal prophylaxis. The result of this policy was shown by the rapid and continuous decline in venereal diseases. From a rate of 164 per thousand in 1911, it dropped to 116 in 1912, and by 1913, in two years, it had dropped to 86.

There are few more signal feats in sanitation than the reduction of 50 per cent. in venereal diseases in the United States Army, which was brought about by the policy of handling them developed by the medical department. This feat is the more creditable because it was the result of an original policy largely developed in our own Army and Navy.

Since 1913, the rate has remained under 90, excepting during 1916. In 1916, as a result of the rapid increase of the Army and the mobilization on the Mexican border, the rate went to 91.4.

In my estimates, I have taken the rate of 90 as the mean average toward which we should strive in the present crisis, although the rate of 91 in 1916 would certainly be fairly justifiable as the standard.

The rate for the Regular Army from September, 1917, to May, 1918, averages a little better than 90.

With the second week of mobilization in September the venereal rate for the National Army shot up to 367 per thousand. The National Guard at this time showed a rate of 150. The Regular Army made a very strong showing for itself by presenting a rate of 80 on this particular date.

Much has been made of this enormous rate of venereal diseases at the mobilization of the National Army. As a matter of fact, it does not give any fair indication of the relative prevalence of venereal diseases in the three services, for this reason: When venereal disease is discovered for the first time in a soldier it goes on record and is counted as a new case. It may, however, be an old infection. The result is, when new recruits are received, all venereal diseases among them at once enter the records; they include old as well as new cases. But after these old cases have once been counted, only actual new cases get into the records as new cases. It takes, therefore, about four weeks before the actual incidence of new cases of venereal disease in a body of troops can be determined. It does, however, give one a very fair idea of the relative prevalence of venereal disease in different bodies of troops to compare the rate when first recorded for these different bodies. And in this respect the contrast between the figures for the National Army and for the National Guard are interesting. The rate for the National Army for the first four weeks after mobilization of the Army was twice that of the National Guard.

I believe it may be said that fact shows that venereal disease was at the time of mobilization twice as common among the men who went in the National Army as it was in the men in the National Guard. That difference probably indicated what the relatively lax discipline of the National Guard could do in holding down the venereal diseases as compared with conditions of civil life where restraints are very much less in force.

During the months of September, October and November new recruits were constantly coming in, but their numbers were rapidly decreasing. From the time of mobilization, the venereal rate in the National Army showed a remarkably rapid decline. On December 1, these rates crossed below the rate of 90. From December 1 to date the rate for the National Guard has not reached 90 per thousand.

The rate for the whole United States Army for 1917, in spite of the enormous peak caused by mobilization, is 88, as compared with 91.3 for 1916.

It is interesting also to see what has happened with our expeditionary forces in France among whom the same general policy of handling the venereal problem is in force.

Among these troops we have none of the sudden peaks in our rate that occur when new troops first get into the records, therefore we are able to obtain a fair idea of the normal rate of incidence of actual new cases of venereal diseases contracted while sol-

diers are in service. Since November 23, when the first report was published, to date for only two weeks has the venereal rate reached 90. The figures since December 21 are these: 75, 57, 74, 58, 52, 55, 44, 48. They are running pretty nearly one half of what we might have expected as a reasonable showing when the war began.

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NEUROSYPHILIS

ITS DIAGNOSIS AND ECONOMIC IMPORTANCE *

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Neurosyphilis is a much more frequent sequence of the infection than is indicated by the available statistics which were compiled before the introduction of modern diagnostic methods. The older statistics took cognizance chiefly of the fully developed and classic types of tabes and paresis and failed entirely to recognize a large group of cases with indefinite nervous and mental symptoms often diagnosed as neurasthenia with nervous breakdown which existed for years before definite degeneration stigmata developed. The well known statistics of Mattauschek and Pilz are the most complete because of the long period covered. Taking the records of 4,134 cases of army officers who had been infected during the two decades between 1880-1900, these investigators followed their careers to the year 1911. They found that 4.75 per cent. had developed general paresis; 2.5 per cent. tabes, and about 3 per cent. cerebrospinal syphilis. Similarly Pilz made an independent study of prostitutes who had been under police control from 1885 to 1895. He collected 2,662 instances and was able to trace 643 patients in whom the infection had existed from ten to thirty-eight years. Of this number 1.32 per cent. had developed general paresis.

These figures, of course, are based mainly on the fully developed clinical symptomatology of neurosyphilis and probably did not take into account the large number of victims who belong to the same category from a laboratory standpoint but present only vaguely defined clinical signs difficult to interpret from a clinical study alone. I have in my case records many patients who have been passed on by physicians without a suspicion of the existence of syphilis until a cerebrospinal fluid examination revealed the true condition. It is impossible at this time to give accurate statistics as to the percentage of infected individuals who would show involvement of the fluid. We have, however, fairly accurate data as to the number of patients in the first year of the disease who show clinical and serologic evidence of such involvement. As a result of several years of observation, I am led to believe that once the fluid is infected with the *Spirochaetae pallidae* resulting in strongly positive reactions cure of such infection seldom occurs unless persistent and proper treatment is instituted and vigorously carried out. If we assume, therefore, that the 25 or 30 per cent. of patients who show abnormal fluids in the secondary stage retain the infection, they are potential candidates for one or the other forms of neurosyphilis. This would lead me to suspect that instead of 10 per cent. of syphilitics with nervous involvement according to the old statistics, at least 20 per cent. would, on careful examination, be shown. This conservative estimate is probably lower than the actual number that would be revealed by our modern methods of precision. It is possible, too, that later infection of the nervous system in uncured cases takes place from a focus in some part of the body as in tuberculous meningitis from a focus of that disease.

If the hypothesis that a normal blood and fluid after efficient early treatment insure such patients against neurosyphilis is true, a vast field is opened for prophylaxis of the really serious consequences of the infection. We can, at least by employing the newer methods of diagnosis and treatment, control the majority of the early infections of the fluid and greatly limit the number of neurosyphilitics in the future.

METHODS OF PREVENTION

The purely clinical methods of diagnosis employed in the past and unfortunately also at this time, together with inefficient therapeutic procedures, have resulted in a large number of individuals permanently disabled both mentally and physically who become inmates of public institutions or a constant care and expense to their families. It is estimated that syphilis is the primary cause of 15 per cent. of the first admissions to our civil state hospitals. In a recent article, Dr. Pollock[1] states that a census of patients in the civil state hospitals of New York at the close of the fiscal year, June 30, 1917, disclosed that 1,370 cases of general paresis and 122 cases of cerebral syphilis were under treatment. Estimating the cost of maintenance of patients of this type to the state and the loss of earnings resulting from their incapacitation the appalling figure of $5,398,644.99 was obtained. How can these tragedies to the individual and the expense and economic loss to the state be prevented?

They can be limited (1) by educating the public as to the far-reaching results of the disease and encouraging sexual continence, and (2) by instructing the individual how best to escape infection after exposure. After infection the future health of the patient is largely dependent on the knowledge of the physician under whose care he may have the good or bad fortune to entrust himself. If the physician has the proper conception of the problem and recognizes the great importance of carefully formulated and efficient treatment he may, after a definite time, be cured clinically and serologically and be assured that his future is secure. Failure on the part of his medical adviser to properly employ modern therapeutic methods and to control the result by accurate serologic examinations results in a cure of symptoms only and not of the underlying infection. The existence at this time of such a large number of cases of neurosyphilis is largely due to the state of knowledge of the disease when individual infection took place, and to the belief at that time that practically all types of syphilis of the nervous system resulted from a late invasion with the virus. Treatment was more or less perfunctory; the serology of the fluid was undeveloped and only the terminal stage of nervous system syphilis was vaguely understood. It is not surprising, therefore, that many individuals infected previous to the modern era of

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* Because of lack of space, this article is abbreviated in THE JOURNAL. The complete article appears in the Transactions of the Section and in the author's reprints.

1. Pollock, H. M.: The Economic Loss to the State of New York on Account of Syphilitic Mental Diseases During the Fiscal Year Ending June 30, 1917, Ment. Hyg., 1918, 2, 2.

accurate diagnosis and more efficient treatment are now the victims of what we may conservatively regard as preventable sequelae of the disease.

We now possess accurate laboratory methods for the diagnosis of syphilis in practically all of its clinical forms together with specific drugs which, given in the proper manner and at the right time, are curative in the majority of cases. We also by a study of the pathologic changes in the various organs appreciate the great value of prophylactic treatment rather than an attempt to cure organs damaged beyond repair. The pathologist is always a therapeutic pessimist because he sees the end-results only of an infection. It should be our aim to teach methods which prevent such consequences.

INSTITUTIONAL INSTRUCTION

How can the knowledge at our command be utilized for the best interest of the individual and the community? In the first place, by a system of education by medical institutions with sufficient intelligence to grasp the importance of the problem. Institutions not organized for the benefit of a small group of favored men, but those which will give to the department of syphilology the same recognition they grant the departments of medicine and surgery. A teaching department organized on broad lines in our leading medical schools should serve as a center for the dissemination of accurate knowledge of this important infection. At present a vast amount of misinformation is conveyed to students by various departments in most of our teaching institutions. Theories and impressions not based on facts are seriously taught by men without a thought as to the results they will have on the future activity of the student of medicine. A professor of pathology in one of our universities belittles the value of the Wassermann reaction of which he knows nothing. Other medical men attach no value to the serology of the cerebrospinal fluid because they have not had an opportunity to correlate their clinical observations with long continued and accurate investigations along these lines. At this time more than any other in the past the problem is of the gravest importance to the state, as with the return of many infected soldiers foci of disease will be established throughout the country that will give rise to its wide diffusion. Dispensaries and hospitals should be properly equipped to diagnose and treat early as well as late forms of the infection and be controlled by men educated in modern methods of diagnosis and treatment who realize the difference between a clinical and a serologic cure. Many hospitals now refuse early cases of the infection when a cure is possible, but gladly receive interesting cases of incurable aneurysms, neurosyphilis and visceral syphilis. It is difficult to eradicate medieval ideas as to the great danger of infection from the minds of hospital authorities and to cause them to realize the value of prophylaxis. We fortunately possess in the city and state of New York departments of health which recognize the economic importance of syphilis and which provide ample laboratory facilities for its diagnosis. They are also active in educational campaigns and eventually will have a much deeper influence in safeguarding the public health from venereal infection than they have in caring for tuberculosis.

DEFINITION OF NEUROSYPHILIS

Neurosyphilis is employed as a comprehensive term to include all types of the disease which may involve one or all of the tissues of the central nervous system. The pathologic process may be limited to the blood vessels alone and give rise to a complex of symptoms due to partial or complete loss of blood supply to a definite area with resulting loss of function and eventual destruction due to softening. In this group we may have a clinical picture like that caused by cerebral arteriosclerosis of nonsyphilitic origin with vague symptoms, as headache, insomnia, loss of memory, inability to concentrate and mental depression. With gradual obliteration of the lumen of vessels supplying important centers or tracts, hemiplegias, paraplegias, monoplegias, aphasia, hemianopsia, convulsions, limited or generalized, may take place. As a result of localized or generalized arteritis, aneurysms and hemorrhages occur with pressure symptoms and tract degenerations accompanied, at times, by profound coma and death.

In uncomplicated vascular syphilis the cerebrospinal fluid may be entirely negative or show a marked globulin reaction, no excess of lymphocytes and either a positive or negative Wassermann reaction. The blood Wassermann may also be positive or negative. If the latter, a positive reaction may at times be activated by treatment. The results of serologic examinations in vascular syphilis are therefore frequently misleading. Damaged vessels often persist after the Wassermann reaction becomes negative and are the cause of cerebral or other hemorrhages or lesions due to thrombosis or partial vessel occlusion. Cerebral arteritis may be a part of a generalized arteriosclerosis with high blood pressure, cerebral hemorrhage and death, a condition not to be distinguished from the nonsyphilitic type in symptoms or terminal stage. Cerebral symptoms are often interpreted after the diagnosis of aortitis and blood pressure determination.

TYPES OF LESIONS

In early syphilis the lesions in the central nervous system are comparable to those met with on the cutaneous surface. They may be superficial and involve only the meninges or may extend to the brain substance itself. Early convexity meningitis is manifested by headache, vomiting, delirium and convulsions which lead to coma and at times to death. Localizing symptoms may be present or absent.

Case 3.—A man, aged 45, consulted me, April 26, 1916, with a primary lesion. His Wassermann reaction was ++++. He received seven intravenous injections of arsphenamin and sixteen injections of mercury, which treatment was followed by a negative test. He then left town. Early in October he suffered from general malaise, loss of appetite with nausea and vomiting in the early morning. A few days later he developed mild transient generalized headaches; and October 27, numbness of the right upper extremity followed by transient motor and sensory aphasia occurred. When seen October 30, he had a right-sided facial paralysis; all the deep reflexes were hyperactive and greater on the right side; the pupils were slightly irregular, reacting well to light and accommodation but did not hold when contracted. His blood was ++++ and a spinal puncture revealed: cells, 944; globulin, ++++; Wassermann reaction, ++++ to 0.2; colloidal gold test, 5555542100. Six intravenous and eleven intraspinal injections with eighteen injections of mercury restored the patient to his former good health. His headaches and numbness disappeared after the second intraspinal injection, and he had no more attacks of aphasia. His fluid and blood have been negative since May, 1917.

Case 4.—A physician developed an initial lesion on the thumb in November, 1916, followed by secondaries. He received immediate treatment with arsphenamin and mercury. Two months later he had right-sided parietal headaches. A

lumbar puncture made in May, 1917, was said to show 104 cells, the other findings being weakly positive. He received three intraspinal injections, after which the fluid was reported negative. His headaches did not entirely disappear and became more intense a few months later. He suffered from insomnia, great depression, impaired mental processes and lost 24 pounds in weight. I saw him Nov. 20, 1917. A few days later, while in the sanitarium, he became excitable and wildly delirious, his delirium lasting several days. Spinal puncture revealed: cells, 416; globulin, +++; Wassermann reaction, ++++ to 0.4; colloidal gold test, syphilitic curve. The serum was negative. Treatment: Seven intravenous and six intraspinal injections, with a course of mercury, were given. All the clinical symptoms vanished and the fluid rapidly became negative.

These cases are usually more acute and rapid in development than the late types of meningitis. Pupillary changes are, as a rule, absent or only slight. In basilar meningitis localizing symptoms are more often met with because of the anatomic structure of the base. Cranial nerve paralyses and pupillary changes usually indicate the onset of this type which frequently shows no subjective symptoms and is only indicated by objective signs as pupillary irregularity and changes in the light reflex. Third nerve palsy is most frequent; occasionally the facial and auditory nerves are involved as well as the optic.

SEROLOGY

The examination of the spinal fluid gives an accurate index of the intensity of the process and usually shows most positive phases in the convexity type in which the pleocytosis may reach a count of 800 or 900, or even 2,000 or 3,000 with positive globulin and a positive Wassermann reaction in the higher dilutions together with a paretic gold curve. In basilar meningitis we may also find marked serologic changes, but sometimes only one or more phases positive in the early development of the process. A sharp limitation of the infection to one nerve or its nucleus may cause pupillary changes or oculomotor paralysis with little or no change in the fluid. These cases may terminate in a spontaneous cure with local damage and no tendency to progress.

EARLY APPEARANCE OF SYMPTOMS

Disseminated forms of cerebrospinal syphilis are met with in the first months of the infection with symptoms referable to the cord meninges as well as to the brain coverings. A careful interrogation of patients with advanced neurosyphilis will often elicit the information that paresthesias, bladder weakness, girdle sensations or rectal disturbances were noted in the early months of their infection. These symptoms at times regressed under treatment, but usually recurred with greater intensity at a later period. Such symptoms without doubt indicate early cord involvement and, when untreated, terminate in typical tabes or spinal syphilis.

A proper comprehension of the late forms of neurosyphilis is possible to one who can visualize the manner in which the tissues react to the infectious agent which invades the cerebrospinal fluid early in the disease. Foci are established in the blood vessels of the brain or cord meninges or the parenchymatous structure of the nervous system, which may remain latent for years or slowly compromise by pressure or degeneration important centers or tracts with resulting focal or general symptoms. As in the skin, a syphilitic process may spontaneously subside in one place and reappear in another. It may rapidly cause a local destructive lesion with definite focal symptoms, a slow invasion of an important center, or a gradual degeneration of cord tracts or the cerebral parenchyma. It is not surprising, therefore, that the symptomatology is so varied and simulates so frequently lesions due to other infections or new growths. An invasion of the brain parenchyma may be present for years with few or no symptoms, if the meninges or important centers are not implicated. The character of the lesions may only be revealed by the serology of the fluid.

INTERPRETATION OF SPINAL FLUID FINDINGS

Observation of a large number of cases during the past six years, in which the clinical manifestations have been carefully correlated with the serologic findings, convince me that the symptomatology should be largely restudied and interpreted from a serologic as well as from a clinical standpoint. Fluid findings enable us to differentiate more accurately the symptoms due to pure vascular syphilis, meningovascular or parenchymatous. It enables us to prognosticate the outcome of certain types and to understand why the deeper forms resist all treatment and eventually terminate in incurable conditions. The latter type may have few symptoms but show a serology which offers the gravest prognosis, the former, acute and menacing symptoms which readily yield to treatment and terminate in complete recovery. The statements so often made that no information is afforded by spinal examinations is, in my experience, entirely erroneous and misleading.

A low grade parenchymatous encephalitis with slight or no meningeal involvement may exist for years with indefinite symptoms often wrongly interpreted. A slight character defect, loss of ambition, forgetfulness, irascibility, mental depression, so-called neurasthenia, symptoms terminating in a nervous breakdown, often precede for years the final stages of paresis and go unrecognized until an accidental eye examination reveals pupillary changes. Patients have come under my care in whom the diagnosis was only made after a sudden loss of consciousness following some unusual mental effort or without assignable cause. Spinal fluid examination reveals the real condition and enables one to correctly predict the patient's future.

SYMPTOMATOLOGY

In cord syphilis and tabes the early symptomatology may be equally vague and long unrecognized. Gastric crises are taken for appendicitis, gastric ulcer, floating kidney, gallbladder involvement, and patients having such symptoms often go to the operating table. Rectal and bladder crises are attributed to local conditions. Leg pains are called sciatica or rheumatism and may precede for years definite disturbance in gait. A radiculitis may exist with pains for months or years before definite involvemnt of the tracts takes place. The serology in such cases is definite and affords diagnostic and prognostic indications of the greatest value.

The symptoms which cause the patient to consult a physician aside from such evident ones as double vision, marked headache, convulsions, severe tabetic pains or paralyses are the following: vague fears resulting from a knowledge of old infection, weakness of the bladder and impaired sexual power, loss of memory, impaired business judgment, speech disturbance, gradually increasing motor aphasia, complaint

on the part of the family or business associates as to increasing irritability or unreliability of the patient, changes in personality, and character defects foreign to the normal state.

In a paper of this character a complete syndrome cannot be given. It is only suggestive and intended to point to the necessity of correlating clinical and laboratory study. It must always be kept in mind that, while the syphilitic inflammation may limit itself sharply to one or the other of the tissues mentioned, pure types are the exception rather than the rule, and that complicated and transitional forms are usual and confuse the clinical diagnosis. A hemiplegia due to an arteritis and hemorrhage may give a high cell count (in one case 1,100) indicating an accompanying meningitis. A gummatous meningitis involving the convexity follows the pial vessels into the brain cortex and may give the clinical picture of a paresis or brain tumor. Treatment in such cases may result in a more favorable outcome than indicated by the serology. Psychoses without the earmarks of paresis with positive fluid findings point to a cerebral encephalitis of unusual localization.

Neurosyphilis may also be complicated with chronic alcoholism as well as with a nonspecific arteriosclerosis. It may be activated after a long period of latency by trauma, unusual mental strain, and by the stress and traumatisms of war. In the routine examination of the officers' training camps several patients have come under my care in whom the condition was revealed by a systematic neurologic examination without previous knowledge on the part of the patient. Under active war conditions an acute activation of the trouble would doubtless be brought about. Railway spine is likewise a not infrequent activation of a latent syphilis in this region.

In a former communication,[2] I referred to the existence of conjugal and family groups of neurosyphilis and quoted some of the available statistics. I also referred to Nichol's experimental work and strain of *Spirochaetae pallidae* recovered from the spinal fluid. The work begun by Nichols has subsequently been carried on by Reasoner, Wile, Zinsser and Hopkins, and others. Reasoner's[3] results were presented in a paper in 1916. He was able to demonstrate fixed differences in various strains of spirochetes as studied in the rabbit. Organisms recovered from the nervous system of patients with early cerebrospinal syphilis produced in the rabbit's testicle a definite type of orchitis with tendency to central necrosis and with eye changes, choroiditis and chorioretinitis in 75 per cent. of the inoculations. Eye involvement in the rabbit is, in his opinion, suggestive of a high degree of invasiveness or predilection for the human nervous system. The knowledge we have acquired regarding types of pneumococci and strains of streptococci and other organisms strongly suggest that the spirochetes may acquire certain changes in biologic characters by repeated passage through the central nervous system of the host. Racial immunity to neurosyphilis of which we have some clinical evidence strengthens the theory of strains of the syphilis organism with highly invasive power.

The following series illustrates the incidence of neurosyphilis in closely related individuals:

2. Fordyce, J. A.: The Treatment of Syphilis of the Nervous System, The Journal A. M. A., Aug. 15, 1914, p. 552.
3. Reasoner, M. A.: Some Phases of Experimental Syphilis, The Journal A. M. A., Dec. 16, 1916, p. 1799.

REPORT OF CASES

Group 1.—C. (husband), aged 55, had tabes, but gave no history of infection. There were typical neurologic signs of locomotor ataxia. Spinal puncture revealed: cells, 54; globulin, +; Wassermann reaction, ++++ to 0.4; colloidal gold test, 2233210000. Serum, ++.

C. (wife), aged 52, had tabes, but gave no history of syphilis. Married 30 years; no children; seven or eight miscarriages. Pronounced symptoms of tabes. Spinal fluid revealed: cells, 5; globulin, ++; Wassermann reaction ++++ to 0.6. Serum, ++++.

Group 2.—M. (husband), aged 63, had taboparesis, but gave no history of infection. Tabetic symptoms were present for years. Mental disturbance and right hemiplegia occurred in 1912. Spinal fluid: strongly positive. Serum, ++++.

M. (wife), aged 62, had taboparesis. In 1897, the ovaries and uterus were removed for gonorrheal salpingitis. In 1907, she developed insomnia and difficulty in walking. In 1910, melancholia and suicidal tendencies appeared. Spinal fluid was not obtained for examination.

Group 3.—C. (husband), aged 35, has tabes. The chancre and secondaries appeared at age of 17. There was no subjective complaint. Objectively, the patient has Argyll Robertson pupils and loss of deep reflexes. Spinal puncture revealed: cells, 4; globulin, ++++; Wassermann reaction, + + + + to 1 c.c. + 0.8. Serum, + + + +.

C. (wife), aged 32, has tabes with optic atrophy. She has been married fifteen years; four miscarriages; one healthy child. No cutaneous symptoms. Six months after marriage she had a right-sided facial palsy. Twelve years later pronounced tabes occurred with rapid loss of vision of the left eye and impairment of the right. Spinal puncture revealed: cells, 67; globulin, ±; Wasserman reaction, ++++ to 0.4. Serum, ++++.

Group 4.—D. (wife), aged 62, had paresis, but gave no history of infection. For many years she has been nervous. In 1913, she had attacks of syncope with nausea and vomiting; in 1916, coma lasting three or four days occurred. Changed pupillary and deep reflexes, tremors, speech disturbances and memory defects were present. Spinal puncture revealed: cells, 7; globulin, ++++; Wassermann reaction, ++++ to 0.2; colloidal gold test, 554443300000. Serum, ++++.

D. (husband) died of paresis.

Group 5.—N. (wife), aged 33, had cerebrospinal syphilis, but gave no history of infection. Married ten years; no miscarriages. One child, 5 years old, has congenital syphilis.

For nearly a year she had been very nervous and irritable; complained of extreme exhaustion; occipital headaches and pains in extremities. Pupils were irregular, unequal and sluggish to light. The deep reflexes were hyperactive and unequal. Spinal puncture revealed: cells, 80; globulin, ++++; Wassermann reaction, ++++ with 2 c.c.; colloidal gold test, 5555410000. Serum, +.

N. (husband) died of paresis.

N. (son), aged 5 years, is mentally retarded, but has no physical defects excepting external strabismus of left eye. Spinal puncture revealed: cells, 1; globulin, ±; Wassermann reaction, — with 2 c.c.; colloidal gold test, 1111000000. Serum, ++++.

Group 6.—N. (husband), aged 50, had paresis, but gave no history of syphilis. In 1914, he developed typical paretic speech, mental defects and somatic signs. Spinal puncture revealed: cells, 16; globulin, ++; Wassermann reaction, ++++ to 0.2; colloidal gold test, 5555543100. Serum, ++++.

N. (wife), aged 33, had cerebrospinal syphilis. Married nine years; one miscarriage; two children died in infancy. One living child 5½ years old has congenital syphilis. She complained of headaches, insomnia and nervousness, and had pupillary changes and unequal reflexes. Spinal fluid not obtained. Serum, +.

N. (son), aged 5½ years, was mentally defective. Spinal fluid and serum were negative, but these examinations were made after the child had received prolonged treatment.

Group 7.—G. (father), aged 43, had cerebrospinal syphilis. The chancre appeared in 1901, and in 1909 there was paresis

of left leg and bladder paralysis. Spinal fluid was not obtained. Serum, —.

G. (daughter), aged 12, is feeble-minded. She has hutchinsonian teeth and arched palate. Is negative neurologically. Spinal fluid was not obtained. Serum, ++++.

GROUP 8.—E. (mother), aged 31, had tabes. She has been married eleven years; no cutaneous symptoms. Neurologically, she presents Argyll Robertson pupils and absent deep reflexes. Spinal puncture revealed: cells, 18; globulin, ++++; Wassermann reaction, ++++ to 0.4; colloidal gold test, 1223321000. Serum, ++.

E. (son), aged 8½, has cerebrospinal syphilis with unequal, irregular and fixed pupils. He is very nervous and was removed from school because of lack of cooperation, inability to grasp instruction and violent temper. Spinal puncture revealed: cells, 2; globulin, ++; Wassermann reaction, ++++ to 0.2; colloidal gold test, 5555543100. Serum ++++.

GROUP 9.—K. (father), aged 38, had paresis. The chancre appeared in 1904, and delusions of grandeur in 1911. Death from paresis in 1916. Spinal puncture revealed: cells, 86; globulin, ++; Wassermann reaction, ++++ to 0.2. Serum, ++++.

K. (child), aged 5, had hydrocephalus when an infant. When 5 years old interstitial keratitis developed.

GROUP 10.—E. (husband), aged 44, had cerebrospinal syphilis (paraplegia).

E. (wife), aged 35, had hemiplegia and evidence of disseminate cerebrospinal syphilis.

GROUP 11.—S. (husband), aged 36, had paresis, the chancre appearing in 1906. In 1907, delusions of grandeur developed and he was committed to one of the state hospitals. Spinal puncture revealed: cells, 127; globulin, ++; Wassermann reaction, ++++ to 0.2; colloidal gold test, paretic curve.

S. (wife), aged 35, had incipient paresis, the chancre and secondaries appearing in 1909. In February, 1918, she developed paralysis of the third and fourth nerves. Argyll Robertson pupils, extreme nervousness and insomnia were present. Spinal puncture revealed: cells, 9; globulin, ±; Wassermann reaction, ++++ to 0.6; colloidal gold test, 5555543100. Serum, ++++.

GROUP 12.—M. (wife), aged 31, has tabes, but she denied syphilitic infection. Married seven years; no children; one induced miscarriage. She has subjective and objective manifestations of tabes. Spinal puncture revealed: cells, 2; globulin, —; Wassermann reaction, ++++ to 0.4; colloidal gold test, syphilitic curve. Serum, +++.

M. (husband) is in a state hospital with paresis.

GROUP 13.—K. (husband), aged 44, had optic atrophy. The chancre appeared in 1914 with secondaries of skin and mucous membranes. In 1916, his vision became impaired. Spinal puncture revealed: cells, 10; globulin, +; Wassermann, reaction, ++++ with 2 c.c.; colloidal gold test, 5555542000. Serum, ++++.

K. (wife), aged 25, had incipient paresis (?); a late secondary eruption appeared in September, 1915. She presents unequal pupils, hyperactive reflexes, more so on right side. Spinal puncture revealed: cells, 185; globulin, +; Wassermann reaction, ++++ to 0.2; colloidal gold test, paretic curve. Serum, ++++.

GROUP 14.—R. (husband), aged 35, had incipient paresis, but gave no history of infection. In April, 1918, left-sided hemiplegia developed. Spinal puncture revealed: cells, 7; globulin, +; Wassermann reaction, ++++ to 0.2; colloidal gold test, paretic curve. Serum, ++++.

R. (wife), aged 30, has cerebrospinal syphilis. The pupils are unequal and irregular with sluggish light reaction; unequal exaggerated deep reflexes; headache and insomnia. Specimen of spinal fluid not obtained. Serum, ++++.

GROUP 15.—W. (father), aged 35, had cerebrospinal syphilis. Date of infection unknown. Unequal, irregular pupils; hyperactive reflexes, more so on right side. Spinal puncture revealed: cells, 25; globulin, +; Wassermann reaction, ++++ with 2 c.c.; colloidal gold test, syphilitic curve. Serum, ++++.

W. (mother), aged 32, had cerebrospinal syphilis. No signs of syphilis developed until syphilitic child was born five years ago and strongly positive Wassermann reaction was discovered. Argyll Robertson pupils were present and the deep reflexes were exaggerated, more so on right side. Spinal puncture revealed: cells, 2; globulin, ±; Wassermann reaction, ++++ to 1.5; colloidal gold test, syphilitic curve. Serum, ++++.

W. (daughter), aged 5, had juvenile paresis. When 3 months old she had a syphilitic eruption; at age of 18 months a hemiplegia developed; at age of 4 years epileptiform attacks occurred. Spinal puncture revealed: cells, 140; globulin, ++++; Wassermann reaction, ++++ to 0.2; colloidal gold test, paretic curve. Serum, ++++.

W. (son), aged 2½ years, has cerebrospinal syphilis. He has always been a healthy child; is bright and appears normal. Has unequal pupils. Other findings negative. Spinal puncture revealed: cells, 12; globulin, —; Wassermann reaction, ++++ with 2 c.c.; colloidal gold test, syphilitic curve. Serum, ++++.

GROUP 16.—P. (father), aged 46, had optic atrophy. The chancre and secondaries appeared in 1898. The patient was well until 1916, when his vision became impaired. Fluid examination was not obtained. Serum, ++++.

P. (wife), aged 42, had tabes, but gave no history of an initial lesion or secondaries. Married in 1899. For seven years she has suffered with gastric crises; has classic signs of tabes. Spinal puncture revealed: cells, 37; globulin, none; Wassermann reaction, ++++ to 0.6; colloidal gold test, 1123100000. Serum, ++.

P. (child), aged 11, was considered a normal child until school authorities reported that she was backward. Has grown very nervous and has increasing difficulty in learning. Has Argyll Robertson pupils. Spinal puncture revealed: cells, 1; globulin, +; Wassermann reaction, ++++ with 1 c.c.; colloidal gold test, syphilitic curve. Serum, ++++.

GROUP 17.—S. (son), aged 20, has juvenile paresis with optic atrophy. He is underdeveloped, completely blind and helpless. Spinal puncture revealed: cells, 15; globulin, +++; Wassermann reaction, ++++ to 0.2; colloidal gold test, paretic curve. Serum, ++++.

S. (father) died of paresis.

S. (mother), aged 38, gives no history of initial lesion or rash. Physical examination is negative; her blood has been repeatedly negative, and a lumbar puncture made recently was also negative.

GROUP 18.—P. (wife), aged 25, has incipient paresis and denied syphilitic infection. Argyll Robertson pupils. Unequal reflexes and beginning deterioration. Spinal puncture revealed: cells, 50, globulin, ++++; Wassermann reaction, ++++ to 0.2; colloidal gold test, paretic curve. Serum, ++++.

P. (husband) is now in a state hospital with paresis.

GROUP 19.—H. (husband), aged 38, has clinical symptoms of tabes. Permission for spinal puncture has not been granted. Wassermann reaction was ++++.

H. (wife), aged 34, has all the neurologic signs of tabes. Has not permitted a spinal puncture. Serum, ++++. She has a son, aged 10, who gives positive blood reaction and has a perforated palate, but no neurologic signs.

NEUROSYPHILIS IN THE ARMY

The thorough and scientific organization of the Army and Navy medical staffs in charge of venereal diseases with the cooperation of the medical section of the Council of National Defense has been followed by a marked decrease in the incidence of the venereal menace among the enlisted personnel. The scientific study of syphilis before the outbreak of war by Nichols, Reasoner, Craig, Vedder and others was largely influential in disseminating modern methods of diagnosis and treatment among the medical officers of the Army. This work has been ably supported since our entry into the war by the committee appointed by the Surgeon-General of the Army under the imme-

diate direction of Colonel Russell. Many of the reserve medical officers have had intensive training in the army medical schools and in venereal clinics, and now in active service are gradually acquiring exact technical skill. I have received a number of communications from former assistants and pupils which show a keen grasp of the syphilis problem and a constant endeavor to enlarge their knowledge.

The importance of early recognition of neurosyphilis and its significance to the future activity of the individual might here be emphasized. Medical officers should be instructed in the present day methods of spinal fluid examinations and learn to interpret the significance of the various positive phases which may be present. The treatment of neurosyphilis aside from the use of arsphenamin intravenously and mercury intramuscularly is perhaps too technical for general employment in the Army. Patients who show such involvement and who do not yield to the methods easy of application should be sent to a base hospital or discharged from the service and referred to a clinic equipped to treat them.

Examination of recruits and officers in the training camps has revealed the presence of neurosyphilis in individuals who either were unaware of their infection or who had considered themselves cured and were suffering no inconvenience from the nervous system involvement. Within the past year, I have seen a number of men who have been rejected because of pupillary anomalies; many of these patients have such slight signs that they are only demonstrated by the rigorous examinations now demanded on the part of the Army.

IMPORTANCE OF LABORATORY TESTS

The value of spinal fluid examination as a diagnostic measure in neurosyphilis is becoming more generally recognized among syphilographers and neurologists. Standardized methods are, however, not as frequently employed as they should be. Many laboratories report only a positive Wassermann reaction without titration of the fluid in strengths of from 2 to 0.2 c.c. or less. Others employ only 0.5 c.c. of fluid and thus fail to obtain a positive reaction in fluids which would give it in larger quantities. The reaction in many cases of tabes and cerebrospinal syphilis has been reported as negative because of failure to use the larger amounts of fluid. On the other hand, the presence of a strongly positive Wassermann reaction in the higher dilutions indicates a more serious type of infection and taken with a paretic gold chlorid reaction suggests paresis or preparesis. We can, therefore, prognosticate with a fair degree of accuracy the eventual outcome of our cases of neurosyphilis by properly performing and interpreting our fluid serology and observing the effects of treatment.

TREATMENT

Treatment begun in primary and very early cases of secondary syphilis doubtless prevents infection of the spinal fluid, but it is impossible to say how much value treatment has in preventing the invasion of fully developed secondary syphilis, for at that time involvement may already have taken place. A recognition of this possibility with properly applied diagnostic and therapeutic methods readily controls early syphilitic meningitis as illustrated in the cases previously quoted and will prevent the degenerative sequelae which follow the long years of latency.

In order to emphasize again the importance of early lumbar puncture and careful and repeated neurologic examinations, I would like to cite another case:

A man who presented himself with a secondary rash in February, 1917, received fifteen injections of arsphenamin and thirty of mercuric salicylate. While under treatment in July, he complained of severe headaches; these occurred in October with marked vertigo and ataxia. At that time, examination revealed pupillary inequality, hyperactive reflexes and a very strongly positive spinal fluid. In another instance, a patient who was in the second year of the infection came complaining of pains about his knees. He had had thirty-two injections of arsphenamin, over 100 injections of mercury and many inunctions. The only neurologic abnormality was beginning Argyll Robertson pupils. The spinal fluid revealed: cells, 24; globulin, ++; Wassermann reaction, ++++ to 0.2; gold chlorid test, 1233100000.

CONCLUSIONS

In the past decade much progress has been made in our knowledge of the nature, development, prognosis and treatment of neurosyphilis. The various types had been correlated with the serology of the blood and spinal fluid and a fairly firm foundation established on which to build in the future. By carefully conserving the data now available, we may be able later to answer some of the questions which so deeply involve the patient's future health and the community's welfare. Some of these questions are the following:

1. Are the present criteria of cure all that are demanded to insure against a relapse of the infection?

2. Assuming that we have a negative blood Wassermann during a year after treatment is discontinued which remains negative after a provocative arsphenamin injection and that the spinal fluid is not infected, the following questions come up for consideration:

(*a*) Can we assure the patient with certainty against a recurrence? A mathematical reply cannot be made to these queries, but up to this time we have seen no relapses in patients who have complied with the criteria in question. All the evidence favors the view that a serologic and clinical cure will remain permanent. It is always possible, however, for spirochetes to be hidden away in some of the tissues too few in number to produce the Wassermann reaction but which may be activated at some future time and produce tissue reactions. This possibility has been observed in syphilis of the eye and in arteritis of undoubted syphilitic origin.

(*b*) Does freedom of the nervous system from infection in the first year with a positive blood Wassermann indicate that such infection cannot occur later from an uncured focus? This question can only be answered when we carefully compare the data obtained from cases of early infection with future observations of such patients. All institutions and physicians should therefore preserve carefully all records, serologic and clinical, and compare them with those obtained in future examinations. Standardized methods of diagnosis and treatment (amount and kind) with results should be adopted and preserved in the form of a medical register like the one used in the medical department of the Army.

8 West Seventy-Seventh Street.

A Patriotic Duty.—To be free from disease, or, if, unfortunately for ourselves, we cannot be free from disease, to prevent by every precaution, the spread of our disease to others, is one great thing we can do for our country.—Editorial, *Minnesota Public Health Association Journal.*

SYPHILIS AND VENEREAL DISEASES AS A PUBLIC HEALTH PROBLEM *

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MINNEAPOLIS

Health authorities ought to be concerned with all diseases which, being infectious and communicable, are likely, through their spread, to endanger public health. It is said that the knowledge necessary to control such a disease consists of the recognition of the causative germ, its method of being carried and the having of a specific therapy. For years we have known the germs of syphilis and gonorrhea, have been perfectly cognizant of how both diseases are carried, and have had at hand a more or less specific therapy. More than that, we have known that continence is entirely consistent with health, and that it is an almost sure preventive of both diseases; and yet, we have hesitated as individuals and as a profession to go on record for it. We have even hesitated, and perhaps with good reason, to advocate those well known artificial means of prevention which the Army and Navy have demonstrated to be so valuable.

The public at large has been inclined to discount what seemed to it unbelievable figures of the prevalence, and the havoc wrought by venereal disease, and has not shown a willingness to be informed, in plain language, of all the facts. This has led to the nefarious practice of making these diseases "secret diseases," in fact as well as in name, and with a full knowledge that a goodly proportion of innocent persons were constantly being infected, we still have tolerated this policy of silence. It has taken a war to wake us up and make it possible to attempt to handle these diseases along the same lines that other infectious and communicable diseases are handled. The government knows full well that we must have well soldiers if we would win this war; it also knows that with every war there has been a marked increase in venereal diseases, and that the control of these diseases among the enlisted men would be its greatest disease problem. These facts were given full recognition when, early in the war, a very definite and complete program was adopted for the early diagnosis, treatment and control of venereal diseases. Not, however, until the mobilization of our draft Army did any one fully realize the very great need of the rapid extension of a similar program to the civil population. When it was seen from the figures produced that the venereal disease rate of civilians was several times greater than had been the rate in the Regular Army, the War Department, particularly through the Surgeon-General's Office began to call on the public health officials of various states to undertake definite campaigns to control these diseases. The fact that nearly every family in the land has had or will have a very personal interest in our Army makes the public sympathetic to this work as it has never been before.

California was, I think, the first state to answer the call, and made an appropriation, from war emergency funds, of $60,000 for the organization of a bureau of venereal diseases in the state board of health. Minnesota followed a few months later with an appropriation of $35,000 for the creation of a similar division. In both cases the funds are to run to the next meeting of the legislatures; for California this means two years; for Minnesota, one year.

In all of the work, one fundamental fact has been kept in view, namely, the absolute need of recognizing the complexity of the problem and of coordinating the work of all groups interested in any particular angle of the attack. Generally speaking, this is in contrast to any previous method under which all of us have seen failures registered because of the necessary limitations.

PROGRAM OF ATTACK

The program for a state divides itself logically into four parts. These will be considered in the order of their importance from the standpoint of their effect on the reduction of disease. The first three parts are concerned with the control of three distinct groups of patients, the fourth part with educational work.

THE CARRIER

The first group of patients with which we are concerned is the one in which enforced quarantine and treatment are necessary. Here are included the great carriers of these diseases, the prostitute, both professional and clandestine, prisoners and inmates of institutions, and incorrigible patients. So far as prostitution is concerned, there must be active cooperation of the police departments and courts in suppressing as far as possible all prostitution. This action will make prostitutes inaccessible, and so reduce exposures; reduction of exposures is bound to reduce infections. Examinations should be made in all cases and quarantine instituted in a hospital or other suitable place.

EFFECT OF LAW ENFORCEMENT ON EXPOSURES AND INFECTIONS

Month	Mean Strength of Command	Venereal Diseases, New Cases	Exposures Represented by Prophylactic Treatments
October	13,813	193	951
November	16,138	101	669
December	17,532	124	623
January	18,068	61	378
February	17,315	86	478

The effect of this work is very nicely demonstrated by some figures collected in San Francisco.[1] In the first place, the problem was rapidly reduced, as shown by the fact that in October before the work started, nearly 400 women were brought into court on charges of moral turpitude. Soliciting on the streets was rampant. November 1, arrangements were made for jail sentences in all cases with quarantine and treatment of those found diseased. During November only about 150 appeared in court, and the streets were clean. The number continued to decrease, until in February less than 100 were arrested.

The effect on exposures and infections is shown by the accompanying table in which it is seen that in the first month exposures, which may be represented by prophylactic treatments, were reduced nearly 300, while infections were practically cut in two, and this in spite of the fact that the strength of command shows an increase of nearly 3,000. As time went on, many other elements undoubtedly entered into the reduction; but there was apparently no other explanation

* Read before the Section on Dermatology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

1. Statistics compiled by Lieut. Allison T. French, Sanitary Corps, U. S. N. A.

for this rapid reduction taking place immediately following law enforcement. Another point to be emphasized in the table is that in February the same judge was on the bench as in October, and he was the one of the four who rotated in this court who was most reluctant in agreeing to the government's demands. Consequently, we see during his month an increase in exposures and a corresponding increase in infections. This table apparently demonstrates that, to a certain extent, exposures and infections follow the enforcement or nonenforcement of law.

While this law enforcement will have a deterrent effect on a certain number of prostitutes, it should not be understood that the work ends with this or their medical treatment; if it did, it would be wasted since on release they would immediately return to their profession and become reinfected. It will be necessary that adequate provision be made for the permanent custodial care of the feebleminded, and for those confirmed offenders who can be forced into a life of decency only by long term commitments to reformatories. By bringing proper social service agencies in contact with the younger offenders, they may almost immediately be returned to society.

The professional prostitute is a prolific spreader of disease, as she nearly always has gonorrhea, which may be chronic in nature, and particularly because, if allowed to practice her profession openly, she daily exposes from ten to twenty or more patrons. From the standpoint of syphilis she is not so important, as she contracts it early in her career and thereafter is likely to take sufficient treatment to keep the disease under control. Clandestine prostitutes are a danger, not so much on account of the number of persons they expose individually, but because there are a great many more of them, and being youthful offenders, they are more likely to be acutely infected and less well informed as to the care of themselves and their patrons.

In the examination of several hundred prostitutes in San Francisco, Sperry[2] found only two or three with demonstrable lesions of syphilis. In an examination of 731 women, Stevens[3] found 147 infected with gonorrhea, 243 with syphilis, and ninety-six with both syphilis and gonorrhea.

In carrying out this work in California, nearly $100,000 was appropriated by various communities of the state, and special isolation hospitals were built in San Diego and Los Angeles. The one in San Diego has thirty-five beds, and the one in Los Angeles, fifty-four beds. San Francisco arranged for a ward of thirty beds in the San Francisco Hospital, and a budget has recently been passed for approximately $50,000 for next year, which not only will permit the carrying on of this work in the hospital, but also will provide for a place of detention at the County Relief Home, which will care for from fifty to 100 inmates. Many of the smaller communities of the state have arranged for the detention of such patients in their county hospitals. Generally speaking, there is greater need for places of detention with proper hospital facilities than there is for straight hospital quarters, as many of these persons are properly ambulatory patients.

There should be an effort to make investigations of appropriate groups, and institute treatment when indicated. In most cases state prisons provide adequate hospital and medical facilities, but rarely do we find any attempt made to examine and treat prisoners in city and county jails. Here we have a class of people who are naturally prone to have no regard for the rights of others, and who are likely to have syphilis or gonorrhea. Arrangements should be made for a careful examination, including a Wassermann test of every prisoner, and proper treatment instituted. If necessary, cases should be quarantined beyond the time of sentence, so that in no case would an individual be allowed his freedom while still in an infectious condition.

During the months of February and March there were examined in the city and county jail in Los Angeles 681 male and female prisoners, 389 of whom were infected, and more than 7,000 treatments were given.

An examination was recently made of forty-three women and 145 men in the Minneapolis City Workhouse. Of the women, fourteen had gonorrhea, nineteen positive Wassermanns, and six had both syphilis and gonorrhea. Of the men, seven had gonorrhea, fifty had positive Wassermanns, and two had both syphilis and gonorrhea, thus making a total of seventy-seven diseased persons out of 188 examined. In general, when surveys have been made of the inmates of jails, approximately 20 per cent. have been found to have syphilis, and nearly 50 per cent. to have syphilis or gonorrhea. These figures indicate the great need that this work be undertaken with this class of people, who, we must realize, will not take the care of themselves necessary to prevent infecting others.

DISPENSARY PATIENTS

Investigations have shown that not more than from 30 to 50 per cent. of the patients infected with gonorrhea or syphilis receive adequate medical service at the hands of private practitioners. This has been due partly to the fact that many physicians are not sufficiently trained in the care of these diseases, and partly to the fact that a great many patients coming to them could not afford to pay for sufficient treatment to arrive at a cure. It is also a fact that a large number of patients, particularly of the poorer classes, go to drug stores, and, of course, it is obvious that treatment received in this way is worthless.

Investigations of certain dispensaries in the East have shown that approximately 50 per cent. of their men patients with gonorrhea attempt drug store treatment before they come to the dispensary.

If there is an insufficient number of specially trained physicians, and if the majority of the people cannot afford to pay the fees of specialists, it is perfectly obvious that there is a great need for more and better dispensary facilities, where people can obtain either free, or for a nominal sum, expert services. We should remember in this regard that we are not concerned entirely with the individual patient, but that to a certain extent we are providing for him in order properly to protect the community. The fact must also be emphasized that unless all of these cases are treated until cured, not very much is accomplished from the public health standpoint. This, of course, is more true of gonorrhea than of syphilis, since the one is infectious so long as present, whereas the other may be rendered temporarily noninfectious. But the great need is to place patients in such a condition that

2. Sperry, J. A.: Venereal Disease Control in San Francisco by the Board of Health, California State Jour. Med., 1918, **16**, 120.
3. Stevens, W. E.: Gonorrhea in Women, California State Jour. Med., 1918, **16**, 260.

they will not be dangerous to others, and this means, generally speaking, a cure.

The man or woman who can afford to pay for only a little treatment should be sent at once to a dispensary or hospital where sufficient and expert treatment may be received.

Pressure should be brought to bear to see to it that every hospital supported by public funds admits all syphilis and gonorrhea patients on exactly the same basis as other patients are admitted, as there would seem to be no sense in their refusing on the one hand to admit active cases of gonorrhea or syphilis, while on the other hand, it is a fact that their wards are continually filled with the end-results of both of these diseases.

The problem of dispensaries is more acute in many of the smaller cities of 40,000 or 50,000 population than it is in the larger cities where there are already in operation either city or university clinics. It is being proposed, therefore, in many of the states, that a number of dispensaries be established in proper places throughout the state, either directly under the state board of health, or, at least, stimulated and officially recognized by it. In states in which there is a sufficient appropriation, a subsidy will be granted communities to assist in establishing these dispensaries, and it is quite possible that by making a nominal charge for treatment the dispensaries can be almost self-supporting.

In nearly all states in which the work is going on, provision is made for free arsphenamin, and these clinics can be made the official distributing points for this treatment. This plan is in accordance with the program that is being followed by Great Britain, namely, that of the federal government stimulating the organization of such clinics, and providing for 75 per cent. of the expenses, while the local communities take care of the other 25 per cent.

Unless the work of these and all other dispensaries is developed to conform to certain standards, the results will hardly be a success. But if certain standards are required such as the provision of a trained staff, sufficient rooms and equipment, nurses and social service workers, good results are almost bound to be attained. There are two distinct ways of insisting that these dispensaries be run according to standards laid down by the state board of health. In many states the board of health has the power to license dispensaries, and definitely control them, and in others, it will be possible by withholding official recognition, or by withholding the free arsphenamin, to see that the standards are followed.

It is very important that the states supply free laboratory service for the diagnosis of both gonorrhea and syphilis.

In California many local health departments were already operating dispensaries in connection with their work, and in many of these a department of venereal diseases was added. In San Diego such an outpatient department was instituted for both men and women. In Los Angeles an evening clinic for men was already in operation, and this has been enlarged, with very much better equipment, and now provides adequate service for both men and women. In May this clinic registered forty-six new cases, and had a total of 136 patients under treatment. San Francisco has depended in the past on the dispensaries of several medical schools. Their new budget, which has been granted, provides for a day and evening outpatient clinic for both men and women at the San Francisco Hospital. In Fresno the county hospital arranged for a ward for venereal diseases, and instituted an outpatient service, with a proper social service department, and within a month's time had thirty-five cases of syphilis under treatment. In Bakersfield a similar arrangement was made at the county hospital. In Santa Barbara a new contagious disease hospital is near completion, and arrangements have been made to have a portion of this devoted to venereal diseases. In Oakland and Sacramento the local health departments have both inaugurated clinics for venereal diseases.

In Minnesota arrangements are being made to open a municipal dispensary in St. Paul. The City and County Hospital already provides about twenty-five beds for venereal disease patients. In Minneapolis the University Dispensary has adequate clinics for syphilis and gonorrhea, and the University Hospital has recently set aside twelve beds for these patients. In Duluth a clinic will probably be established under the local health department. Arrangements have been completed in these three cities for examination of all police court cases, and their quarantine and treatment when necessary.

In connection with these dispensaries, and cases placed under quarantine from the courts, there was distributed up to March 31, 1918, in California 1,660 doses of arsphenamin. This was distributed to thirty-two different dispensaries or health departments, and was given to 393 patients. For the most part, these were a class of people who under former conditions would have received no treatment. In view of the fact that these patients received an average of more than four doses of arsphenamin within this rather brief period, it is felt that a piece of work worth while has been accomplished. These patients also received mercury by inunction or injection.

PRIVATE PATIENTS

Adequate provision must be made for the treatment, and especially for the control, of private as well as indigent patients. This necessitates the passing of laws or rules and regulations, by the state board of health, under which these patients can be required to take the necessary amount of treatment.

There should be a system of notification identifying in some way those persons venereally diseased, and providing for a report of the name and address of the individual who does not so conduct himself as not to endanger others. The health officers should be responsible for the control of these individuals when they are reported. A rule should also provide for parents and guardians being responsible for the compliance of minors. In all cases reports are strictly confidential. Many physicians believe that notification is bad, as it is thought that it will have a tendency to drive patients away from them, and into the hands of druggists and quacks. The public in general, and patients in particular, should be informed carefully of the confidential nature of these reports, and that so long as they as patients continue under treatment and conform to the necessary rules and regulations, their names and addresses need not be divulged, nor will there be any difference in the relationship to their physician on account of this work.

California has had for several years a law requiring the reporting of these cases by number, but no definite effort ever has been made to enforce it. Since the

campaign was undertaken, however, their reporting has increased to more than three times the amount for the previous year. In Minnesota we are just preparing to inaugurate this work by circularizing all the physicians and asking their support for the government program. Many states in which reporting is now going on report the complete cooperation of the medical profession.

So far as we are concerned with the druggists, rules should be passed which will prevent counter prescribing, or the sale of any preparation or nostrum in the treatment of syphilis or gonorrhea. This sort of treatment means the loss of a considerable amount of time to the patient, and also in most cases it means that the patient, when finally presenting himself to a physician, has a chronic, difficult case, rather than an early case in which proper treatment can be very much more successfully given.

There is also a point in connection with this which distinctly concerns the Army and Navy, and indirectly also the civil population, and this is the treatment of soldiers or sailors by drug stores. This is to be condemned for two reasons. In the first place, on account of the men themselves getting inadequately treated, and in the second place, because it prevents the Army surgeon from placing these men under control, since the rules in the Army and Navy are that no such infectious patient be granted a leave of absence from the camp, and in that way any infection to the civil population is prevented.

By preventing the advertising of quacks, and by proper education of the people, it would seem possible to put the obvious quack or faker out of business. But it will be rather more difficult to restrain certain otherwise reputable physicians who persist in practically labeling themselves "quacks" so far as venereal diseases are concerned, by agreeing to cure these diseases quickly for stated fees. Generally speaking, the control of these patients who go to private practitioners depends almost entirely on the hearty cooperation of the medical profession, both individually and collectively. It is to be hoped, particularly at this time, when the value of this work to the federal government is so great, by reducing the disability among soldiers and sailors, both present and prospective, and among the vast army of industrial workers, that all physicians will pledge themselves to this cooperation.

EDUCATION

The systematic education of both laity and physicians as to the danger of these diseases, to their prevalence, and to the needs of adequate treatment, is the most important of any single method of attack. This should be directed along two distinct lines. In the first place, a campaign should be undertaken to get information to both laity and physicians from the disease standpoint. This should include lectures, distribution of pamphlets, setting up of placards in public comfort stations and other appropriate places, and various other means of publicity. Lectures should be given to various groups of men and women, and to county medical societies, both relative to the diseases and to the program for their control. A pamphlet on the treatment of these diseases should be furnished to physicians, as well as one containing information and instructions to be given patients. A carefully planned exhibit and stereomotorgraph with proper slides may also be used very successfully in various communities.

The other part of the educational work is directed toward those who in turn will be teachers, and is not limited in its scope entirely to venereal diseases. Courses should be arranged for in every state university, and in all normal schools. These courses should cover biology, psychology of sex, sociology, sex hygiene and venereal diseases. Courses should be given in medical schools with particular reference to the public health side of the problem. Courses should be given to hospital, public health and school nurses. Under the educational department a course of study of sex education should be planned for parents' and teachers' associations. Communities should be stimulated to the further use of present recreational facilities. The need and the part this work plays in stimulating a normal sex life in the young should be emphasized. This is particularly a great need in the rural communities.

I believe one important detail of the educational work should be giving people to understand that something can be done if exposure has already taken place. This may be called early treatment, or prophylaxis, as one wills. Its value has been fully demonstrated by the Army; of that there can be no question; but there is the question as to how this information should be given. I myself believe such information should be given individuals at the time of their attendance to the hospital or dispensary, and that people should be urged to go to these places for advice; but I do not believe that the public in general is willing to have such information spread broadcast to the youth of the land, nor do I believe that it would be proper on our part to advocate the sale of a prophylactic package, since that savors of the very drug store treatment that we are attempting to discard.

In connection with the educational work in California, forty lectures were given in cooperation with the War Department's Commission on Training Camp Activities, which reached approximately 55,000 enlisted men. A limited number of lectures were given to certain groups of people throughout the state, and a definite campaign for work along this line has been outlined. A number of sets of posters furnished by the American Social Hygiene Society were placed in various Army and Navy camps. A stereomotorgraph with proper slides was purchased, and sent first to Camp Kearney, at that time the largest cantonment in the state, and from there to others in different localities. Approximately 2,000 placards with information on venereal diseases were distributed and placed in the latrines of the Army and Navy camps of the state. Approximately 1,600 were distributed and placed by local health officers. About 6,000 pamphlets on venereal diseases, and 5,000 on the modern treatment of syphilis, were distributed throughout the state during the six months' period.

In Minnesota we feel that our educational program is well under way in view of the time elapsed. During the past winter complete courses were given at the university, and at a number of the normal schools of the state. Dr. Ulrich, who has charge of this work, has given fifty-five lectures to approximately 10,000 people. A number of different pamphlets have been issued and are being distributed. An exhibit is being planned and a stereomotorgraph with complete sets of slides has been ordered. A copy of the War Department's film "Fit to Fight" has also been ordered and will be shown to all enlisted men.

CONCLUSIONS

The program as proposed, and as put into force by the War Department, has already been proved a success by the fact that our armies now have the lowest venereal disease rate of any army in the field, and for weeks the rate of the expeditionary forces has been only about half that formerly averaged by our Regular Army. The program as proposed for civilians is along the same lines and is intended to be carried out in cooperation with the Army and Navy. There is every reason to believe that it will also be successful, particularly if it receives the support of the profession. There is a good opportunity for the private practitioner to show his desire to help by complying with all rules and regulations and by doing as much individual educational work as possible. The specialist who does not enter the Medical Reserve corps has an opportunity to serve at home by taking an active part in this movement, by lending his assistance with his special training, not only in working out problems, but by giving some time to dispensary work in his community.

There is need for the federal government to come to the state's aid in the way of finances just as England has done, and such legislation is now before Congress. With this assistance, the work will go on much more rapidly.

Emphasis should be placed on the educational work, particularly in the medical schools, as the people at large depend on the physicians for information concerning these diseases, and unfortunately the majority of the medical profession have little idea of the modern conception of sex hygiene or the public health point of view of the problems of prostitution and venereal diseases. This is due primarily to a lack of teaching of these subjects in the medical colleges.

A well rounded program for combating venereal diseases must take cognizance of every factor that enters into their spread. Any attempt to limit the work to any one field will fail, just as medical efforts at reducing venereal disease through attempted regulation of prostitution has always failed. In its last analysis we must agree with Surgeon-General Gorgas that venereal diseases depend on sex immorality for their spread; and until we do away entirely with immoral sexual relations, we cannot do away entirely with these diseases.

601 Syndicate Building.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. PUSEY, FORDYCE AND IRVINE

DR. JOHN E. LANE, New Haven, Conn.: The work which Dr. Pusey and his associates have done has already given such definite results and has been demonstrated to be of so great value that it cannot help assisting in the adoption, by other states, of the plan suggested by Dr. Irvine for the prophylactic measures which he has already introduced in several states. It is interesting to know that the value of the prophylactic measures adopted in our Army has already been recognized in France. You may remember that Fournier, in 1901, established the Society of Sanitary and Moral Prophylaxis in Paris, and planned prophylaxis on the lines that we have adopted. The measures suggested have never been taken very seriously by the majority of French physicians. A short time ago Sabouraud visited our army camps in France and gave a most flattering report of the result of the prophylactic methods used by our Army. He at the same time deplored the fact that the French, who first originated the plan and methods of prophylaxis, had to be shown how to put them into operation by the Americans.

We are all indebted to Dr. Fordyce for his insistence on the need of examination of the spinal fluid in cases of syphilis and for his persistence in demonstrating this need. We are also indebted to him for his persistence in demonstrating the need for organized hospital and dispensary facilities for the treatment of syphilis. It must be a cause of gratification to him to see that his efforts are beginning to bear fruit.

Dr. Irvine has been one of the leaders in the movement for getting the venereal diseases under the control of the state health authorities. The value of his work is best shown by the fact that several states have adopted plans similar to those which he has put into execution. I am glad to say that my own state is one of them.

DR. JOHN H. STOKES, Rochester, Minn.: I have myself been converted from a stand of opposition to intraspinal medication to the point where, while not an enthusiast, I am prepared to admit that at the hands of a man like Dr. Fordyce it is possible to produce results which cannot be duplicated by the conventional methods. On the other hand, I still feel that intraspinal therapy is a final rather than a first resort and that it should not be undertaken by the tyro. At the hands of the profession at large intradural therapy has been sadly overdone. This, however, is by no means a reflection on the method, but rather on those who have let enthusiasm get the better of their discretion. The results mentioned by Dr. Pusey and Dr. Irvine have interested me greatly. My personal hope is that state programs, however excellent, will not be allowed to overshadow the need for a really national campaign against venereal diseases.

DR. KING SMITH, Toronto: Men with well-marked psoriasis should not be taken into the Army. They live in huts and tents with other men and often such men are put down as syphilitic and their life is miserable. It is the same with many other diseases. Many cases of typical psoriasis and other diseases are considered syphilis, and it is hard to change the diagnosis. The soldier's pay is altered, as you know, and that man does not start in with a fair chance. I would like to suggest to Dr. Pusey that they think of the returned men. They will soon be sent back in great numbers with the loss of a leg or an arm and syphilis. The man cannot be kept in the Army, and you must find some way in which those men can be treated thoroughly in a civilian capacity. In Canada we have formed a league whereby these men can be gotten out of uniform but still receive care. The more you serve the more you will protect your other countrymen. You must give them every chance in this game, for they have given up everything for us, and we must protect them and when possible train the men not to put down syphilis against a man's name until he is sure of it. Get him back to the base hospital where he can have thorough treatment, and then make the diagnosis.

Many diseases have been put down to nervous origin. I found thousands of such cases soon after the evacuation of Gallipoli, where I happened to be. I saw only a very few irritated cases, never a lichen planus, and what struck me was the marked absence of nervous disease after going through that great campaign. The great thing I saw was the ecthyma group, which is often put down as syphilis. The men necessarily cannot change their clothes, the pediculosis is extreme and the ecthymoid conditions are very severe, forming great ulcers which look like tertiary syphilis, but are not. We sometimes do a routine Wassermann on a returned man, but I do not think this is justice to the man. If the man has not shown evidence of syphilis in the Army and you find the Wassermann positive, it goes down in the history sheet, he has to go down and take treatment, and if he refuses to do so it goes down on his chart and so becomes public property. The returned man, unless there are marked lesions, should be gotten out of the Army and in that way protected. If he is in the hospital his wife and friends come to see him, and everyone soon knows that he is attending a clinic for venereal disease if that plan of treatment is adopted. I do not believe in the long treatment of syphilis while the men are in the Army. If you can get the lesions cleared up, send them back to the trenches as soon as possible. They have as much right to be there as the healthy, sound men.

Dr. A. Schuyler Clark, New York: I have been in the Army for one year and up to the present time have never given a pink pill. My work has been entirely administrative and has consisted for nine months of medical administrative work in a division and three months in a base hospital, so I am inclined to look at this question from the point of view of efficiency in the Army and of administration. The point of putting a case of venereal disease in the hospital has two sides. There is no question that every acute case should be in the hospital, but there is a very decided objection to keeping them in the hospital too long. There is a great tendency for some soldiers to get "hospitalitis" or become hospitalized, and once that has happened it is extremely hard to get them interested in an organization again and anxious to go to the front, as all our soldiers are. A member of our organization is doing most efficient work at Camp Grant. I refer to Major W. L. Baum. The idea of getting venereal patients out of the hospital and having them treated by their organization is being urged by him. It is being tried out at the present time at the Depot Brigade at our cantonment, where they receive the new men coming directly from civil life. A venereal infirmary is being established there for the treatment of venereal patients in order that they may be gotten out of the hospital as soon as the acute stage is over. I am convinced that from the point of view of efficiency in the Army this plan is along the proper line. I believe that soom a division infirmary will be organized and there it will be important for an experienced venereal surgeon to teach the treatment of venereal diseases to the regimental officers of the detachment, requiring at least one regimental officer to report at this venereal infirmary and learn how to take care of venereal cases. I think that will be a future development in the Army. It is now being put into effect at Camp Grant. These soldiers do not wish to become hospitalized. I should like to tell you how appreciative the officers at Camp Grant are relative to the efforts being made to prevent prostitution in Rockford. I have never seen a cleaner city than is Rockford. It is rare to find a so-called new venereal case. The women of Rockford meet the trains and a questionable woman is approached by these women and advised that she had better return where she came from. If this is not effective, supervision is kept over her, and sooner or later she is put in jail or gotten out of town. This has a splendid effect on the cantonment in the prevention of venereal disease. There is no question about the effectiveness of prophylaxis. Another element which I consider of very great importance is the abstinence from alcohol.

Dr. Henry R. Varney, Detroit: Dr. King Smith was speaking of the proper treatment of the returned soldier, but I think there is another point, and that is the duty we owe to the returned soldier's family. I should like to ask what is being done to prevent these returned soldiers from infecting their wives and children with gonorrhea and syphilis.

Dr. Fred Wise, New York: As I have the good fortune to be one of the few men in the room who is associated with Dr. Fordyce, I will confine my remarks to a discussion of his paper. In his recent writings his aim has been a campaign of education for the physician more than for the layman. The question of neurosyphilis has occupied his time for several years, but in spite of the fact that he has an overwhelming supply of data to present it may surprise you to know that in our city of New York many doctors not only do not follow his precepts in the treatment of neurosyphilis, but actually decry the value of spinal punctures. Dr. Fordyce's reports are based not on imagination, but on careful scientific data which have accumulated after years of hard labor. Naturally I can appreciate the work which he has presented to you today, because I have before me every day the results of the spinal treatment of neurosyphilis. If the handwriting on the wall be interpreted correctly, every doctor, specialist or practitioner will not only have to master the subject of spinal puncture in every case of syphilis, but also the treatment of neurosyphilis on the lines laid down by Dr. Fordyce.

Dr. James Herbert Mitchell, Chicago: Many of the criticisms of intraspinal methods are incident to the dangers of that treatment. The original Swift-Ellis technic was designed for those cases which did not respond to the intravenous method. In our work we have limited our cases to those which did not respond to other treatment. The criticism which Dr. Stokes brings against the method will apply equally as well to the intravenous method. We have all seen a great many cases which have been markedly mistreated with the intravenous technic. That is not a criticism of the method, but of the clinician. During the past year I saw a patient in the dispensary who had had eight intravenous treatments. She had a hemiplegia and intense headache, which was not in any way relieved by intravenous injection. Spinal puncture showed 1,000 cells per cubic millimeter. One intraspinal injection of a large dose of undiluted serum gave her relief from the headache, and two further treatments relieved practically all the objective as well as the subjective symptoms.

Dr. Loyd Thompson, Hot Springs, Ark.: I wish to mention one or two things in regard to venereal prophylaxis in the Army which Dr. Pusey did not touch on, the enlisted man on furlough and the officer on leave of absence. I found that 8 per cent. of our men who contracted the disease did so while on furlough. We are not able to control their actions on those occasions, and they have no prophylactic material with them. It is my idea that it would be a good plan to furnish all men who go on furlough with a prophylactic kit of some sort. A man may go on pass one night and indulge himself and come back and fail to take the prophylaxis. He will go on pass again the next night, will not indulge himself, but will take the prophylaxis. He is within the law, so far as the Army regulations are concerned, and we have no way of knowing when the infection occurred.

In the matter of treatment: As long ago as last October I advocated establishing dispensaries in the divisions. Our division surgeon did not approve of it and we did not get as good results as we might have. We have now established a division dispensary which will take care of all ambulatory cases of venereal disease.

Dr. M. Scholtz, Cincinnati: In discussing sanitary control of venereal diseases we must differentiate clearly between the military and civic aspects. The military problem is so thoroughly and efficiently controlled by the federal government that we, as physicians, have no cause for anxiety as to the results sought for. The civilian problem is infinitely more difficult and complex. We should realize that the main reason why the venereal problem is so difficult of solution is because venereal diseases are social and secret. The medical profession as a body cannot render a greater service to society than by educating and molding its mind in this direction. When we have accomplished this our difficulties will largely cease. I believe, in this sanitary crusade of social hygiene, we should rely more on the educational campaign and more liberal attitude in the matter than on the oppressive legislation or on the raids on shady hotels. We should not judge the effectiveness of our clean-up efforts by the number of arrested women of ill repute. The effects of these measures are always transitory and local in character. We all know that these undesirable female characters, when driven out of one city, land in another community. We simply transfer our burden temporarily to our neighbors. From this viewpoint it is high time for the medical profession to urge the government to organize a national commission for the study of venereal diseases from every possible angle—medical, social, educational and economic—a commission which would insure a concerted action on the national scale and rational methods of solution.

Dr. E. H. Martin, Hot Springs, Ark.: Referring to Dr. Brown's paper, I wish to call attention to one factor which may have led to error; that it, that his experiments were made on rabbits with the initial lesion. Any one who has treated many cases of chancre must realize that the chancre is the most resistent of all syphilitic lesions to treatment until you come to the cerebrospinal colonies. Many organisms reside in the chancre, many of them in an unkillable stage, and the drug does not have the effect on them that it does on the ordinary forms of spirochete. Very often an indurated lump will remain at the site of the chancre for weeks after healing; very often ten doses of ordinary arsphenamin have been given

before such a lump would soften. I believe if the experiments could be carried out on animals in the secondary stage, after the chancre had softened, they would be more valuable in determining which of the drugs is most curative.

DR. FRANKLIN R. WRIGHT, Minneapolis: If we may believe the writings of Havelock Ellis, there has been only one race of people discovered who did not have prostitutes, and they had polygamy. The question simply comes down to one of sex; the male has strong sexual desires, while the female has maternal desires. Applied to the human race, the male is a natural Mormon and the female is not. It is simply a matter of sex all the way through. One of the leaders on sex questions has stated that if a man of 35 brags that his will is so strong that he has never had intercourse, that man is boasting of the weakness of his sexual powers instead of bragging of the strength of his will power. The question is, Are we willing to teach the general public that all unmarried men have intercourse, and that the state has cured all persons having illicit intercourse of contagious disease and made fornication as safe as possible? Are we ready to go so far as to teach the public that there are measures which they can take by which the chances of infection are reduced to the minimum? If we are ready to teach the young boys and girls these things, well and good. The Army is a different proposition. It is a well-known fact that the men who do the heavy physical work are not the ones that have strong sexual desires. The men who do the mental work and live sedentary lives are the ones who have the strong desires. Army life is a fairly active life.

There are reasons why the Army shows great diminution in the amount of venereal disease. All these cantonments are in small communities. The number of prostitutes in any community is in proportion to the number of unmarried males. More than this number cannot find lodging suitable to their vocation. This is the situation at Rockford, Ill.; Battle Creek, Mich.; Camp Kearney at San Diego, Calif., and other places. At Camp Custer, Mich., between October 1, 1917, and December 15, 1917, there was only one young man admitted to the Base Hospital who had acquired his infection after entering the Army. There were no prostitutes at these places, except a few to take care of the needs of the unmarried men among the 30,000 people living in Battle Creek. This reason will apply to Camp Kearney, Calif., the same as at Camp Custer, Mich.

DR. WADE H. BROWN, New York: In experimental therapy we have to take such conditions as we find them and make the best use of them. As to the use of the rabbit for experimental purposes, well developed and enduring primary lesions are relatively easily obtained, while there has been a great deal of discussion as to the extent to which a true generalization of the infection with secondary lesions follows a local inoculation. In recent years we have found that a true generalized syphilis does occur in the rabbit in many instances and that secondary lesions may appear even as late as sixteen or eighteen months after inoculation, but such lesions may be very transient and, as a rule, are much more easily influenced by treatment than the primary lesions. Further, when treatment is instituted during the primary stage of the infection with consequent healing of the initial lesions, if a true cure has not been effected, secondary or generalized lesions may appear later in a considerable number of animals and this is particularly true of certain drugs, as instanced by the results reported with various arsphenamin preparations. For these and other reasons which we might mention, it seems better as a routine procedure to treat experimental animals during the primary stage of the infection and to rely on the subsequent development or absence of generalized lesions during some four to six months than to treat the more transient and more easily influenced secondary lesions. Under the circumstances, this is all one can do, as a rule, and the results obtained from such experiments furnish reliable presumptive evidence as to the therapeutic action of the drugs used.

DR. WILLIAM ALLEN PUSEY, Chicago: I would like to call Dr. Wright's attention to the fact that the reason there are not more women in Rockford and Battle Creek is not because there are not more prostitutes that might be available for these districts, but because it is a part of the Army work to keep them away.

Regarding the question about what to do with cases of venereal diseases after the war, this is undoubtedly very important, but so far there has been considerable to do to take care of the venereal cases during the war, and not much has been done as yet toward the care of them after the war. The protection of the family against venereal disease while the man is in the Army is pretty well taken care of by the fact that these men are not allowed to get away.

Regarding the percentage of venereal disease, the Army program has taken some pride in the fact that it has not been an unworkable program. I do not mean that it is ideal, but only a fair standard at the present time.

DR. JOHN A. FORDYCE, New York: I had no intention of presenting the subject of intraspinal therapy in neurosyphilis, but as this has been touched on by several of the gentlemen I will briefly refer to it. In order to obtain results by the method in question one must have a very clear conception of the various conditions present. In other words, indications for or against this therapeutic procedure are afforded by the results obtained from an examination of the spinal fluid. Early meningitis may occur before, during or after intensive treatment. These cases can best be controlled by intraspinal injections. In tabes, with a relatively high cell count and positive Wassermann, if the degeneration be not too far advanced, we can anticipate further degeneration, relieve the pains and cure the crises in the majority of cases. In optic atrophy, with the preservation of one half or one third of the vision with positive findings in the fluid, we can arrest in the majority of cases the further progress of the atrophy.

Many neurosyphilis patients come to me in my private work and in the clinic who have had a large amount of treatment of arsphenamin and mercury. It is useless to continue the ordinary methods of treatment in such cases. They are treated intraspinally if the indications afforded by the spinal fluid examination point to an involvement of the meninges. Many cases of disseminated cerebrospinal syphilis which have not been cured by ordinary treatment have been cured or greatly benefited by the method in question. In the past five years we have treated about 170 cases of various types of neurosyphilis and have obtained a negative cell count and negative Wassermann in 2.0 c.c. of fluid in about 30 per cent. of the cases. We do not consider the patient cured until we obtain a negative Wassermann with the larger quantities of fluid. As to the benefit to be expected in paresis we cannot say as much. There are, however, borderline cases of meningoencephalitis which simulate paresis and which have been cured. In the routine examination of the spinal fluid in the various types of neurosyphilis we frequently meet with patients who give a four plus (++++) Wassermann in 0.2 c.c. and a paretic colloidal gold curve. Although these cases presented no stigmata of degeneration, we consider them potential paretics. In these cases treatment probably delays for a long time the development of the later degenerative stage.

DR. HARRY G. IRVINE, Minneapolis: In regard to the returned soldier, the federal government should notify the state boards of health of any diseased man coming into their district. Where the program which has been suggested is enforced it would be possible to have these cases taken care of in their dispensaries. This program provides for this very thing and not only for the care of the returned soldier, but will also protect his family and the community as necessary. I am sure that the Surgeon-General's Office has gone into this matter and that it will be given serious consideration. The relationship of prostitution to venereal disease can hardly be settled in two or three minutes' discussion. It is possible to do away with commercialized prostitution, which is not in business to take care of the demand but to create a demand, and this can and should be done away with. So far as control of prostitution is concerned, it is worthless to institute any form of medical examination to attempt to make it safe. In any attempt at regulating prostitutes it has never been possible to register more than 10 per cent., and it is worthless to adopt any program which can be applied to those registered and not to the others, who are in the majority. So I cannot see that

it will ever be possible to make the prostitute safe, so far as venereal disease is concerned. I think that the habits of the male have a great deal to do with the amount of intercourse. If a man is in the habit of doing without for a long time he can do so very nicely. The question of alcohol, whether a man is working or not, and the nature of his work all enter into it very largely, but as time goes on and we have better sociological conditions we will likely develop a race of men who will get along with much less intercourse than has been the case in the past, even if such a thing is not the case at present.

The question of making prostitution safe brings up again the segregated district, and that has been shown to be an absolute failure, so far as venereal disease is concerned. Many of the best authorities have gone on record, publicly stating it as their opinion that any attempt at medical regulation has always been a failure so far as reducing venereal disease is concerned. I think that until we are as well informed as those men are it is hardly good form for us to question the statements which they make.

THE QUESTION OF OPERATION IN GUNSHOT ABDOMINAL WOUNDS *

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The study of gunshot wounds of the abdomen deals with one of the most interesting chapters of the major wounds of war, especially by reason of the numerous controversies relating to a general plan of treatment of abdominal wounds. Certainly the present war has developed important advances in this department of surgery.

In previous wars it was held as dogma that gunshot wounds of the abdomen should be treated expectantly and conservatively, as distinguished from the teaching of prompt operation in civil practice. At the present time, it may be said that the weight of opinion is in favor of applying in military practice the civil method of immediate operation in all penetrating wounds of the abdomen wherever the favorable conditions of civil practice can be provided. These essential conditions include a skilled operator, trained assistants, a sufficient armamentarium, an aseptic environment, and the time in which to operate. Practically all agree that it is better to await the establishment of these conditions before attempting to operate.

It is likely that the best explanation of the improved statistics of operation in this war is to be sought in the favorable conditions of trench warfare, the battle lines being in the main more stable than in former wars, and allowing of better preparation for operating near the front.

Chalier and Glénard[1] express the view of most war surgeons in all armies when they say that expectancy is a "snare and a delusion." It is permissible only when twenty-four to forty-eight hours have elapsed since the injury, when operation could do no good. In this event, they advise that no food should be given and the man should not be sent back any distance until after six weeks.

Notwithstanding the fact that the experiences of the present war have modified the old views as to the advisability of abstention in abdominal wounds, there still remains, notably in France, a rather sharp division between what are designated the abstentionists on the one hand and the interventionists on the other. The former group bases diagnosis of penetration and perforation, as well as treatment, on the evolution of symptoms; the latter group makes the complete diagnosis by laparotomy, applying appropriate surgical treatment immediately or within the first few hours. Unfortunately, the most experienced surgeons occasionally find more or less difficulty in diagnosticating penetration and perforation before operation, and all are, of course, opposed to precocious operating in nonpenetrating wounds.

There is not always present an aperture of exit, in which case it is difficult to determine the course of the missile. All missiles may ricochet. I have witnessed wounds in which, if the missile had traversed the shortest route between the two openings, there would have been perforation of many vital organs and structures, and yet there was no serious injury.

There are a few recognized rules to follow; for example, the closer together the wounds of entrance and exit, the less the chance of penetration. And Rochard[2] declares that if a wounded man does not cease to complain of abdominal pain, a perforation is almost certain. Rochard also says that if a patient passes gas at the anus, there is no perforation.

All rules fail sometimes, with the exception of these three which prove the existence of perforation: escape of bowel contents from the wound of entrance or exit, protrusion of perforated intestine at the wound, and passing of the missile by the anus. Schwartz and Mocquot[3] describe four cases of perforation showing no signs. I have observed the case of a man with perforating wound of the abdomen who continued active duty for several hours after receipt of the wound, having no knowledge of the injury. Six hours after injury, the abdomen at operation was filled with blood.

Among the common signs of perforation are pain; vomiting; hiccuping; costal breathing, due to immobility of the diaphragm; the syndrome of shock; board-like rigidity of the abdomen (ventre du bois); retraction of the testicle to the external abdominal ring; change in shape of the abdomen, for example, the "ventre bilobé" from meteorism; emphysema as in colon wounds; tympany; temperature changes, etc. To these may be added the symptoms of intra-abdominal hemorrhage. A true interventionist does not, of course, await the appearance of all these symptoms, since one may suffice to determine the propriety of operating.

CONDITIONS DETERMINING OPERABILITY

Among the deciding criteria which determine the advisability of operation are the following:

1. The kind of missile. A smooth undeformed bullet as a rule makes a small canal in the abdominal wall and a small easily sutured opening in a hollow viscus unless the shot be tangential to the intestine. Such a smooth bullet, however, usually produces an irregular laceration of a parenchymatous organ. The aperture of entrance being smaller and more clear cut than the aperture of exit. Irregularly deformed bullets naturally produce larger and more ragged wounds than do smooth ones. For example, the fragmented nickel or steel mantle partially split off and projecting from a lead center bullet may do great damage. Large

* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

1. Chalier, André, and Glénard, Roger: Rev. de chir., 1917, **53**, 124.

2. Rochard, E.: Bull. et mem. Soc. de chir. de Paris, 1915, **41**, 2182.

3. Schwartz, Anselme, and Mocquot, Pierre: Rev. de chir., 1916, **51**, 56.

grenade fragments do not as a rule penetrate deeply, but often cause extensive crushing and laceration of the abdominal wall. Small grenade fragments often do very little injury, but may produce a deceptive wound; that is, the wound of the abdominal wall may seem insignificant, whereas the intra-abdominal injury is extensive and serious. Shrapnel balls often remain impacted in the abdominal coverings. They are of low velocity and usually retain their smoothness and rotundity and do comparatively little damage to viscera, considering their large size. They rarely completely traverse the abdomen. Shrapnel wounds are usually infected because the low velocity missiles push into the clothing, whereas the small, high velocity rifle bullets cut clean, small wounds and do not often carry in fragments of the clothing.

2. The length and character of transportation required to bring the patient to the place of operation. Koerte places the limit of operability at twelve hours, and Chalier and Glénard at twenty-four hours, and the records of all show that the operative mortality percentage rises rapidly with each hour during which operation could be done after the subsidence of shock.

TABLE 1.—STATISTICS OF ABDOMINAL WOUNDS TREATED BY THE ABSTENTIONIST METHOD

Surgeons	No. of Cases	No. of Deaths	Surgeons	No. of Cases	No. of Deaths
Barbet and Bouvet	11	10	Brought forward	532	422
Bichat	21	16	Lorin	10	8
Cadenat	9	3	Marquis	68	36
Chaput	4	4	Meyer and Taylor	41	17
Chavannaz	38	22	Pascalis	10	7
Chevassu	85	27	Pellot	12	6
Delore	100	100	Picqué	16	11
Didier	3	0	Proust	33	33
Dupont and Kendirdjy	40	40	Rouvillois	67	60
Gatellier	12	12	Schwartz	10	7
Gaudier	75	69	Sencert	58	45
Gosset	5	5	Stern	50	46
Hourtoule and Barbier	7	4	Tartois	8	8
Latarjet and Cotte	5	5	Vignard	11	2
Leriche	117	105	Weiss and Gross	57	49
			Total	983	760
Carried forward	532	422			

Proportion of mortality, 77.3 per hundred.

3. The stability or nonstability of the place of operation determining whether the patient may require transportation soon after operation.

4. The factor of time, that is, the question as to whether time can be given for the operation without neglect of other wounded.

In any case, before operation is undertaken, the interventionist excludes simple, nonpenetrating injury of the abdominal wall. Likewise, he considers the question of whether conservative treatment, under the circumstances relating to the wound, the patient's general state and surrounding conditions would not be better.

INTERVENTION VERSUS ABSTENTION

At the beginning of the war, nearly all surgeons were abstentionists. For example, Aug. 10, 1914, in an address to the Academy of Sciences, Delorme advised against intervention, saying that experience in the Transvaal and in the Manchurian and Balkan wars justified the expectant plan, but the records of the interventionists are better in this war, as shown in Tables 1 and 2, taken from Chalier and Glénard.

It should be noted that the interventionist verifies his diagnosis of perforation, or, in the French nomenclature, penetration with injury of the viscus; whereas, the abstentionist may designate as perforation cases some which are not perforative. M. Chevassu, who was an abstentionist, not by choice but by unfavorable circumstances, had only twenty-seven deaths in eighty-five penetrating gunshot wounds, but according to French writers, many of these were doubtless cases of simple penetration without any injury of an important viscus. Moreover, the interventionist's deaths occur promptly and are counted against him, whereas the abstentionist's deaths are often late, as from fistula, and are not counted.

TABLE 2.—STATISTICS OF ABDOMINAL WOUNDS TREATED BY THE INTERVENTIONIST METHOD

Surgeons	No. of Cases	No. of Deaths	Surgeons	No. of Cases	No. of Deaths
Abadie	15	9	Brought forward	365	203
Barbet and Bouvet	15	8	Lorin	8	5
Bichat	21	10	Mathieu	26	20
Boulay	20	11	Mathieu	41	28
Bouvier and Caudrelier	33	18	Meyer and Taylor	50	17
Bouvier and Caudrelier	58	30	Pascalis	3	0
Cadenat	17	12	Pellot	11	10
Charrier	1	0	Petit	5	0
Chavannaz	13	9	Picqué	15	9
Chevassu	38	25	Proust	101	64
Cotte and Latarjet	9	5	Quénu	1	0
Delay and Lucas Championnière	22	12	Roubier	15	9
Delay and Lucas Championnière	55	30	Rouvillois	73	54
Didier	10	6	Schwartz	9	5
Dupont and Kendirdjy	4	3	Schwartz and Mocquot	46	30
Duter and Halez	1	0	Schwartz and Mocquot	60	41
Gatellier	11	6	Stern	34	20
Gosset	7	3	Tartois	11	6
Hallopeau	4	2	Vignard	9	5
Hourtoule and Barbier	10	4	Villette	2	0
Launay	1	0	Weiss and Gross	4	4
Carried forward	365	203	Total	890	530

Proportion of mortality 59.5 per hundred.

In support of intervention, the Interallied Surgical Congress of last March expressed the view, which is the most authoritative available, that all intestinal wounds should be treated by laparotomy, with suture. Most surgeons reserve the suprapubic buttonhole drainage, which the French call the operation of Murphy, and which the Germans ascribe to Payr, for cases of simple penetration without perforation. Payr advised that in all penetrating abdominal wounds an incision be made promptly above the symphysis for drainage.

Chalier and Glénard treated fourteen of their thirty-nine cases of abdominal gunshot wounds with simple drainage of the pouch of Douglas with intraperitoneal injections of ether and oil of camphor. They also injected oil of camphor subcutaneously and employed the Fowler position. There were ten deaths among the fourteen patients. None of the patients were operated on within ten hours after injury and some were operated on as late as the fourth day.

TABLE 3.—RESULTS OF SUPRAPUBIC DRAINAGE IN FIFTY-FIVE CASES

Bouvier and Caudrelier:
16 operated on in less than 3 hours, 8 deaths, 8 cures.
11 operated on in less than 5 hours, 5 deaths, 6 cures.
2 operated on in less than 6 hours, 2 deaths, 0 cures.
Lapointe:
14 operated on in the first 7 hours, 8 deaths, 6 cures.
12 operated on after the first 7 hours, 12 deaths, 0 cures.

Table 3 shows the results of simple suprapubic drainage in fifty-five cases.[3]

What may be called the internationally accepted treatment of patients not to be operated on consists in rest in the recumbent position with shoulders raised and knees flexed. This position relaxes the abdominal musculature and adds to the comfort of the patient. No attempt should be made to move the patient unless the move is unavoidable, nor should he

be permitted to move himself. If he is moved before the operation, the Fowler position should be maintained during transport. Food by the mouth should be interdicted and water likewise should be forbidden, unless neither nausea nor gas is present. A teaspoonful of water at intervals of fifteen minutes may be given by mouth to moisten the dry mucosa. Food and water may be given by the bowel in the case of lesions of the small intestine or the stomach, the common sites of perforation. Opium should be given to control pain whether the operation is to be done or not. Shock is to be combated by heat, and by physiologic sodium chlorid solution administered hypodermically, by rectum and by intravenous infusion.

MORE COMMON INJURIES OF THE VARIOUS INTRA-ABDOMINAL ORGANS

Gunshot injuries of the stomach are of frequent incidence. Perforation of the stomach when it is full is more serious because of the escape of the contents, than when the organ is empty, notwithstanding that the openings made by the missile are smaller, all things being equal, when the stomach is distended (Landois). The commonest injury is that in which the aperture of the entrance is on the anterior wall and the wound of exit on the posterior wall. This, of course, may be reversed. Both openings may be on the anterior wall, or on the posterior wall. In the latter case, the stomach contents will empty into the lessser peritoneal cavity.

Landois has called attention to a frequently occurring phenomenon, namely, the outpouring of stomach contents into the lesser peritoneal cavity through a wound of exit in the posterior wall, while the wound of entrance on the anterior wall discharges no contents at all.

Little value attaches to the symptoms of hematemesis in stomach wounds as it is rarely present. Wounds of the anterior stomach wall are, as a rule, easily found and readily closed. The wound on the posterior wall is not always easy to find nor is it easy to close by suture. Through a large opening in the gastrocolic omentum, the lesser peritoneal cavity may be mopped free of blood and the stomach contents and the posterior wall inspected. Occasionally one can find the posterior wound with the finger but cannot bring it into view for closure by suture. In such a case, drainage without suture is safer than blind and awkward attempts to repair the wound. An experienced surgeon, however, will not often be driven to forego the suture of any stomach wound.

Pauchet has advised approaching the posterior stomach wall through an opening made by separating the greater omentum from the transverse colon along the line of the insertion of the omentum to the intestine. I have found that this method provides excellent exposure. It is very easily carried out.

Of all the hollow viscera, the small intestine is the most frequently perforated. Horizontal close range shots with the wound of entrance near the umbilicus produce most perforations. There may be wounds of entrance and exit in each wounded coil of intestine or a single opening may be present, the result of a tangential shot. As a rule, the openings are present in pairs, the wound of exit being the larger and accompanied by more marked extrusion of mucosa. Irregularly deformed nickel or steel-jacketed bullets or grenade fragments may entirely divide the small intestine. Of great practical importance are the wounds establishing communication from the intestine lumen to the space between the peritoneal laminae of the mesentery produced by tangential shots of the small intestine at its mesenteric attachment. These may be overlooked.

A few hours after perforation of the small intestine, the neighboring peritoneal surfaces become covered with plastic exudate, which in the case of small wounds, for example, those from minute grenade fragments may effectually prevent further escape of intestinal contents and occasionally lead to spontaneous cure. The benign, walled-off abscess is unfortunately a much less common sequel of perforation than is general peritonitis.

The comparatively hopeful outcome of injury of the large intestine has been ascribed to the fact that the walls of the large intestine are thicker and the wound is partially closed by the greater amount of tissue involved in the perforation. An interesting point is that wounds of the small intestine higher up are more likely to be associated with injuries of other vital organs than are wounds of the large intestine. Many surgeons of the present war support the view of Landois that if we eliminate from consideration associated lesions of other organs, infection from injury with escape of contents of the large intestine is more serious than that following injury of the small intestine. The contents of the cecum and ascending colon are rich in bacterial flora of virulent character, so that comparatively few patients with perforation of the colon survive even when promptly operated on. A smooth rifle ball or a small grenade fragment may produce a small wound of the colon which more or less perfectly closes itself by contraction of the muscularis and the sliding of the intestinal coats. In such a case, the escape of contents being slight or nil, the chance of recovery is good if the operation is performed promptly.

Retroperitoneal wounds of the colon are often overlooked, especially in fat individuals. The presence of intraperitoneal hematoma and gray or brown-gray discoloration of the peritoneum with edema or gangrene in the neighborhood of the wound are valuable signs, though not always present. Retroperitoneal wounds of the transverse colon may elude search until the lesser peritoneal cavity is opened.

Extraperitoneal injuries of the rectum nearly always recover though the convalescence may be prolonged because of the development of fistula, cellulitis or septicemia. On the other hand, all injuries of the rectum which establish communication with the peritoneal cavity are to be regarded as serious.

Wounds of the kidney are, as a rule, accompanied by injuries of the intestines. If there is no evidence of perforation of the intestine, the kidney injury should be treated conservatively. Even in cases of extensive hemorrhage from a kidney wound, the treatment may well be conservative unless the case can be brought to operation very early and the hemorrhage is really threatening. Uncomplicated injuries often heal promptly. If the renal vessels are divided or great destruction of the kidney has occurred nephrectomy is required. As a rule, however, it may be stated that rifle bullet wounds of the kidney are best treated by rest and opium. Occasionally, gunshot injuries of the kidney are followed by hydronephrosis requiring incision and drainage.

Wounds of the bladder rarely produce dangerous hemorrhage. The bladder contents are normally not infectious, but if emptied into the peritoneal cavity, cause more or less chemical irritation. Obviously, extraperitoneal wounds of the bladder are less serious than those which involve the peritoneal cavity. Hemorrhage into the bladder suggests an extraperitoneal injury of the bladder. An empty bladder suggests intraperitoneal injury of the bladder with escape of urine into the peritoneal cavity. The interallied conference declared for primary suture of intraperitoneal bladder wounds and for suture of extraperitoneal wounds as well. Inaccessible wounds are to be enlarged and drained. Cystostomy should be done in bladder wounds with urinary infiltration.

Intraperitoneal wounds of the bladder demand abdominal operation if conditions are favorable. If not, a retention catheter should be introduced promptly. Extraperitoneal wounds are best treated by continuous catheterization or by perineal section.

A clean-cut wound of the liver is rare. Lacerations are the rule. The wound of entrance is small, the wound of exit larger, and the bullet canal fusiform. Star shaped wounds are not rare. Hemorrhage is always present, the degree depending on the size of the vessels involved. Fortunately, the liver tends to tear and give way between the large vessels. Near the hilus, however, the danger of injury to large vessels is great. Liver hemorrhage often subsides spontaneously. Blood pressure is low and the bleeding may be controlled nearly always by pressure with gauze pads. In wounds of the liver communicating with the chest, hemorrhage is into the chest cavity, rather than into the abdomen, since intra-abdominal pressure is greater than intrathoracic pressure. If there be extensive laceration of the diaphragm, the liver tissue may be extruded into the chest.

Uncomplicated gunshot wounds of the liver require no surgical treatment unless there is serious hemorrhage. This hemorrhage may be controlled in nearly all cases by gauze packing, which is left protruding at the abdominal wound.

Combined injuries of the chest and the abdomen are not uncommon. Landois divided these into five groups as follows:

1. Abdominal injuries associated with perforation of the diaphragm and pleural space. Since the pleural space extends considerably farther down laterally and posteriorly than the upper level of the abdomen, horizontal shots may, of course, perforate both cavities. In such a case, stomach or intestinal contents, bile or peritonitic exudate may enter the pleural space causing pleuritis.

2. Associated injury of thoracic and abdominal organs. In a complicated injury of the lung and liver the patient may cough up bile, or as in one case observed by the author, may cough up a bullet entering the lung by way of the abdomen and the diaphragm. Empyema may occur as the result of such a complication. The heart may also be injured by bullets passing through the abdomen.

3. Wounds with great laceration of the diaphragm. In such a case, the liver or other abdominal organs may be extruded upward into the chest.

4. Tangential shots of the lower thorax with contusion of the liver or kidney.

5. Separate or multiple injuries of the chest and abdomen.

ABSTRACT OF DISCUSSION

DR. DANIEL N. EISENDRATH, Chicago: The principles underlying the treatment of gunshot and stab wounds of the abdomen are essentially the same whether the work is in civil or military life. Dr. Eastman spoke of the combined thoracic and abdominal injuries. These are of a special class in which in civil practice the perforation of the diaphragm and injury of abdominal viscera are frequently overlooked because the men do not think of anatomic relations, that the diaphragm has under it a large proportion of the male abdominal viscera. For that reason we are accustomed to look carefully within the first six to twelve hours, examining the patient with perforating stab or gunshot wound of the chest almost every hour for evidence of abdominal injury. Especially in the last two years of the war there have been a relatively large proportion of injuries of the thorax, which have gone under the name of the open, or leaking pneumothorax. In these cases there is extensive laceration and destruction of the chest wall with injury to the diaphragm, to which Dr. Eastman has referred, and extensive laceration of the liver. Since the Battle of the Somme there has been more tendency to treat these injuries by early exploration. This can easily be done by reopening the edges of the thorax wound to see whether there has been perforation of the diaphragm or injury of the subdiaphragmatic structures. Dr. Eastman spoke of the signs of perforation. These are not different in war from those seen in civil practice, and it is the consensus of opinion among those of experience that when these are present, under no circumstances should a chance be taken, but that laparotomy or exploration of the wound be done at once. Rather should this be done many times without finding an intraperitoneal perforation than that a perforation be overlooked. Of these signs rigidity of the abdominal muscles is one of the most important in indicating beginning peritonitis. If that rigidity spreads within two or three hours, or has at the time of first seeing the patient spread over one quarter or half of the abdomen, take no chances, but do a laparotomy at once. Accompanying tenderness is also a very valuable sign of beginning peritonitis. A third sign is increase in the pulse rate. Leukocytosis is also a guide, because this may be present after effusion of blood into the peritoneal cavity, as it is in cases of infection. You do no damage by operating in a case presenting these signs. If the wound has not perforated the abdominal wall you have done no harm. If there has been perforation of the abdominal wall you are in a position to deal with the injury. The first surgeon to suggest the value of suprapubic drainage was Dr. Van Buren Knott of Sioux City, Iowa. Many recoveries from generalized peritonitis in the last five years have been attributed to suprapubic drainage. With a generalized peritonitis you might as well pass your hand over a patient as to expect suprapubic drainage alone to effect a cure. Unless there is repair of the injury in the early stages such drainage is an irrational measure. I do not think any of us will fail to remember the clinical picture of perforation of the upper portion of the alimentary canal or pancreas with the hypertoxicity which comes from the activated pancreatic secretion. A method I have found of value in examining for perforation is that of placing a loose catgut suture about the coil of intestine at the point of beginning examination. If you find no perforation in the small intestine, begin at the catgut suture and examine the large bowel in the same way. The suture thus marks the beginning and the ending of the examinations.

DR. JOHN YOUNG BROWN, St. Louis: For quite a number of years I have been an earnest advocate of early operations in the treatment of gunshot wounds of the abdomen. There are some points relative to diagnosis to which I should like to call attention. The simple penetrating wound is a wound that penetrates the peritoneal cavity and does not injure the solid or hollow viscera. The penetrating and perforating wound may be subdivided under two heads: 1. The penetrating and perforating wound, where the bullet injures only the bloodless portion of the gut. 2. The penetrating and perforating wound, where the bullet perforates the intestine and mesentery. This last type of wound is readily diagnosed, as it gives immediate symptoms—the symptoms resulting from hemorrhage. The

other two types cannot be diagnosed without exploratory operation. I have seen many cases with multiple bowel perforations, perforations occurring in the bloodless portion of the bowel, which presents absolutely no symptoms suggestive of the seriousness of the injury. Again, I have operated in a large number of cases where examination of the wound of entrance would indicate perforation, and, after exhaustive search, I failed to find any injury. Early exploration should be the rule in all cases. Cases that give no immediate symptoms may have multiple perforations, and the failure to repair them will result in fatal peritonitis. In regard to the combined wounds involving the chest and abdomen, all such cases should be explored. We no longer hesitate to open the chest. A stab or bullet wound penetrating the chest brings on a pneumothorax, and resection of a rib in order to see if the diaphragm is injured can be done with perfect safety. If the diaphragm is penetrated, the same rule should hold good relative to abdominal section. I seriously question the cases that have been reported as having recovered from multiple perforations without operation. I am inclined to believe that the diagnosis was incorrect.

HEMORRHAGIC DEGENERATION OF MYOMAS AND THEIR RELATION* TO SARCOMAS*

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By hemorrhagic degeneration of myomas is meant that condition in which spontaneous hemorrhage takes place into the substance of a myoma that has previously undergone a degeneration. Gebhard sought to indicate the essential degenerative character of the lesion by calling it a necrobiosis. The changes which underlie the condition consist of an obliterating endarteritis, hyaloid degeneration of the vessel wall and degeneration of the surrounding tumor tissue, with finally a free hemorrhage into the interstices of the degenerated tumor. The end-result of hemorrhagic myomas may be one of several: 1. The hemorrhage may become absorbed from the substance of the tumor, leaving only cholesterin crystals or small cysts. 2. More commonly the escaped blood lies for indefinite periods in a fluid state (Fig. 1), but the blood may clot, leading to vascularization and organization of the blood clot. 3. The hemorrhage may result in perforation of the capsule of uterine tissue covering the necrobiotic mass (Fig. 3). The escape of blood from such a perforation may cause profound irritation of the peritoneum, or even death from shock. 4. Finally, a rapidly developing sarcoma may develop from the hemorrhagic tissue. It is the last named condition that concerns us here.

It is necessary in seeking the relationship between these hemorrhagic myomas and sarcomas to examine the conditions that precede the hemorrhage and to study the changes that take place in the mass after hemorrhage has occurred.

Cullen long ago pointed out that most myomas show some evidence of hyaloid degeneration. In most tumors the microscope is required to discover it. These areas of degeneration when more extensive may involve the tumor tissue diffusely, or only that portion most remote from the vessels, while that lying nearest the vessels remains undegenerated or even shows evidence of recent proliferation. On the other hand, the tissue lying next to the vessel wall may be the part showing the chief degeneration (Fig. 5). This seems to be the type in which hemorrhage is most apt to occur. Associated with the hyaloid changes there is always a thickening of the vessel walls and usually a narrowing (Fig. 6), or even an obliteration of the lumen of the vessel (Fig. 7). Surrounding these vessels more or less extensive hyaloid or mucoid material is found. These areas may liquefy and form cysts. This is the most common degenerative change observed at the operating table. It is tumors showing such changes that are prone to bleed into their substance. What factors enter which excite a hemorrhage within such tissue cannot be stated. It is probably due to a progressive decrease in the resistance of the vessel walls until they are weakened to such a degree that they are no longer able to withstand the intravascular pressure. Accidents to the common source, however, must sometimes play a rôle, for in some tumors multiple foci of hemorrhage are seen.

Once blood has escaped, a series of phenomena are observed. In some tumors the blood remains fluid for long periods of time. The history may indicate that hemorrhage took place months before operation, yet these tumors are fluctuating, and, when cut into, much blood escapes. This fluid blood may be contained in compartments of varying sizes, or may infiltrate the tumor diffusely. This blood may or may not undergo spontaneous coagulation within the tumor or when exposed to the air. In most instances a part coagulates before the tumor is opened and part remains fluid. Usually bands of fibrin that have undergone some development form a network across the small pools of blood. Within this meshwork, red blood cells lie which have not undergone degenerative changes (Fig. 8). In some instances this tissue proceeds to a complete development of fibrous tissue, and a typical angioma results. Sometimes, on the other hand, the fibrin bundles remain as such, showing no tendency to go on to the development of fully formed fibrous tissue. It is in these specimens, usually those in which the hemorrhage occurred some time previous to operation, that the most interesting changes take place. In fresh hemorrhages, nucleated cells are observed that can be identified as leukocytes. These cells arrange themselves along the fibrin bundles noted above. In older specimens these cells are larger, the nuclei are ovoid, and the protoplasm is more abundant. In other words, they may be called endothelioid. The way these cells arrange themselves along the fibrin bundles seems identical with that observed in tissue cultures. I have often observed similar phenomena in the study of the healing of freshly made wounds. In some specimens a part of the tumor may represent tissue in this stage (Fig. 9), and another portion may show more positive evidence of sarcoma. Finally the patient may attest to the character of the tumor by dying of a rapidly recurrent sarcoma. The question of fundamental importance is the source of the nucleated cells from which the sarcoma develops. They seem to come from the blood stream, because in recent hemorrhages they are mingled in the proportions in which one would expect to find leukocytes. More convincing to me is the fact that in the healing of peritoneal wounds the cells seem to be native to the blood stream.[1]

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* Owing to lack of space this article has been abbreviated for publication in THE JOURNAL by the omission of the illustrations. The complete article appears in the Transactions of the section and in the author's reprints.

1. A more detailed consideration will be found in Hertzler, A. E.: The Peritoneum, St. Louis, C. V. Mosby Company, 1918, 1.

Should it prove to be true that these cells, which are found along the fibrin bundles, are derived from the blood stream, one would be warranted in designating such sarcomas as hematogenic. These would then be placed in contrast with the more common type resulting from metaplasia of the myoma cells, which may therefore be called myogenic.

The hypothesis set forth above finds support in the genesis of sarcomas of other regions. Sometimes in tumors developing in fascias after a single blow, similar pictures are observed. The same thing is true of processes in the intestine wall which begin as inflammations and end up as sarcomas. Closely related are reactive processes which do not end in malignant tumors such as desmoids and woody phlegmons. The first group is exemplified by those tumors which arise following injuries to bone or fascial plains, and the other by sarcomas following inflammations of the intestine wall. The latter type so closely resembles indurative inflammations that a distinction is impossible.

The disposition of the hemorrhagic myomas to form sarcomas finds a practical application in the fact that they are always objects of suspicion. Whenever any of the evidence of hemorrhage or the changes which precede it are present, the prognosis must be made with a certain reserve.

ABSTRACT OF DISCUSSION

DR. EMIL NOVAK, Baltimore: The work of Dr. Hertzler is very interesting, but he has not given sufficient evidence that these cells surrounding the blood vessels actually become converted into sarcoma cells, as he believes. We ought to be very conservative in our interpretation of these findings. Very few myomas do not show hemorrhages. In these cases of hemorrhage with blood thrown out into the tissues we always get what might be called a foreign body reaction. Sometimes we even get giant cells. I recently saw a case of large ovarian cyst with what seemed at first sight to be giant cell sarcoma in the walls of the cyst. Closer examination showed these to be simply a reaction to an old hemorrhage. If Dr. Hertzler can show other pictures proving the transition of these cells into actual sarcoma cells we can accept his theory. Otherwise, I feel that it is without proof. It is curious to expect hemorrhage in myoma to predispose very strongly to sarcoma when it does not do so in other parts of the body. This suggestion looks rather unlikely, especially when we find hemorrhage in practically all myomas of the uterus. Every myoma of the uterus ought to be cut open before it leaves the operating room. Unfortunately, there is little clinical evidence to indicate sarcomatosis, the process taking place in only one nodule. It is a great mistake not to cut into all nodules; the one overlooked may be the one becoming sarcomatous. One reason for the unfortunate outcome in sarcomas of this group is that supravaginal hysterectomy is done. Dr. Cullen some time ago reported a case in which supravaginal hysterectomy had been done two years before and in which at the time of report the patient had suddenly gone into collapse with symptoms of intraperitoneal hemorrhage. A large mass had arisen from the stump at the site of the old operation. The old specimen was looked up in the laboratory, where it had been examined two years before, and in one of the nodules the typical sarcoma was found, having been overlooked at the time of operation. Kelly and Cullen collected 2,300 cases of myoma and a little over 1 per cent. (twenty-five) were sarcomatous.

DR. BERTHA VAN HOOSEN, Chicago: I may not be able to add any weight to Dr. Hertzler's paper, but I hope I will not detract from its value if I demonstrate a reverse process, i. e., malignant disease converted into fibrous tissue. A patient, who had inoperable adenocarcinoma of the cervix and who was suffering from hemorrhage, profuse and bad smelling discharge, much pain and general debility, was given 9 grains of emetin intravenously with no reaction, and at the end of two weeks the hemorrhage and discharge had entirely ceased and she was able to be up and do light work. A second dose of 9 grains was followed by a severe reaction and sudden death. No pathology was found to account for the patient's death, and a section taken from the part most involved by the carcinoma shows in the superficial portions an extensive fibrosis surounding small groups of carcinoma cells; the deeper parts of the section show no evidence of malignancy.

DR. ARTHUR E. HERTZLER, Kansas City: I have tried to make it clear that in order to get the facts of this argument one would have to review a considerable number of cases, observing the various steps in their development. In the myomas I see there is hemorrhage in only a small proportion of the cases. This may be explained by the fact that I never use the retractor, and have no traumatism, except that done by the operator's hands. Fully 90 per cent. of the tumors we have had do not have blood in the substance of the tissues. The percentage of sarcoma in the tumors I see is just about four times that in Dr. Novak's experience. In order to get the run of the general argument one must familiarize himself with the structure of cultures in vitro, the appearance of the cells and the fibrin bundles as they develop. He must also familiarize himself with the development of fibrous tissue along the lines of recent development.

PAROTITIS FOLLOWING INDUCED ABORTION IN A CASE OF PERNICIOUS VOMITING IN PREGNANCY*

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DETROIT

REPORT OF CASE

Some time ago I was called into the country by Dr. Sharpe, in consultation, to see Mrs. X., a primipara, aged 23, who was then in her thirteenth week of pregnancy. Vomiting had begun on the eightieth day following the beginning of her last menstruation, and had become progressively worse until, at this time, it had reached the pernicious stage. The patient was much reduced and exhausted, but looked fairly well, and it was arranged that, should the remedies then suggested prove inadequate, interruption of the pregnancy must be undertaken without delay.

Three days later, I dilated and emptied the uterus, placing a strip of iodoform gauze in the cavity and packing the vagina lightly with the same material. The following day the patient became nervous and disturbed, and these symptoms continued during the greater part of her illness, the delirium at times becoming boisterous and agitated.

Three days after the curettage, she complained of pain in the left parotid gland, which was swollen and inflamed. Forty-eight hours later, a large quantity of thick yellow pus was discharged from the mouth. On the following day a fluctuating mass in front of the ear was opened under chloroform by the attending physician, and during the next twenty days four other abscesses or pockets, one of which was retropharyngeal, were incised and drained. On the fifth day after operation, headache developed. On the tenth day there was severe pain at the base of the skull, and on the nineteenth day there was a constant backward movement of the head, indicating a probable involvement of the meninges or encephalon. Muscular twitching and repeated up and down movements of the hands and feet occurred at intervals during the entire period of the disorder. Vomiting continued until the twelfth day following operation, when it ceased. No pelvic symptoms were noted until the nineteenth day, when urination began to give rise to great distress. On the twenty-first day the emptying of the bladder was, on one occasion, preceded by a slight convulsion. During the greater part of the time urine was passed freely, frequently involuntarily, but at

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times it became scanty and of a dark brown color, and deposited a large amount of sediment. There is no record that urinalysis had been made. Involuntary movement of the bowels was of frequent occurrence.

On the fourteenth day, a cough developed, sometimes accompanied by the raising of quantities of pus which the patient had evidently swallowed. On the eighteenth day, she complained of pain in the right lung, which was aggravated by coughing. During the whole course of the disease, free discharge of pus continued from the wounds and mouth, and later from the nose, and on the thirtieth day both eyes became filled with purulent material.

On account of the condition of the stomach during the early days of the sickness, the patient could retain no nourishment. Later the swelling of the neck glands and stiffening of the jaws prevented opening of the mouth, and forty-eight hours were sometimes passed without food of any kind. Nutrient enemas were begun early and tried repeatedly, but were generally expelled; at times the anus and rectum were so relaxed that the fluid escaped as soon as introduced. During the last day of life, tube feeding was resorted to. Saline by hypodermoclysis at times appeared to give temporary relief.

After thirty-three days of intense suffering, which toward the end was relieved only by hypodermics of morphin, the patient finally succumbed to the infection. During the entire illness the temperature went up only once as high as 103, generally fluctuating between normal and 101. The pulse was erratic, but never went above 140, usually running to about 100 or below.

This case was obviously one of profound septic infection. The source of the trouble is not, however, as readily determined. The case is unique of its kind; I find no other similar instance recorded.

RELATION OF PAROTID TO SYSTEMIC DISORDERS

In pagan times, when men ran up against a problem which they could not solve, it was carefully shouldered off as the work of demons. As late as the early nineteenth century, Christianity made the inexplicable a throwback on Providence, and later still the term "sympathetic" stood for the unknown, and "reflex phenomena" served as a cloak to ignorance of internal physiologic and pathologic processes.

The relationship between the parotid gland and systemic and local disorders has not, up to the present time, been satisfactorily elucidated. That symptomatic parotitis sometimes occurs as a grave complication in the course of infectious fevers has long been known, and that it is also an occasional sequela of other disorders, as amebiasis (Lesk), peripheral neuritis (Gowers), and the like, has been fairly demonstrated. In 1886 Paget directed particular attention to the fact that parotid bubo might develop as a rare secondary manifestation, following injuries to and operations on the abdominal and pelvic viscera, and he collected 101 cases from his own experience and the literature. In 1902 Morley added fifty-one cases to the list, and since that year a considerable number of instances have been reported in the medical press of this and other countries. Moreover, it has been found that symptomatic parotitis may follow other operations, though more rarely than those directed to the abdominal contents. Thus, MacDonald has seen cases of inflammation of the gland associated with railway amputations of the thigh, and Auld mentions an instance which followed trachelorrhaphy and the removal of hemorrhoids. Altogether there are now on record the reports and histories of several hundred cases of the condition, from which we may draw conclusions.

In specific parotitis, or mumps, the existence of a distinct connection between the disorder and the testes in the male and the pelvic organs and breasts in the female, especially during the child-bearing act, has been satisfactorily established, and Lavaran has shown that, in this form of the disease, the materies morbi is a specific organism, a small gram-negative diplococcus, which is presumably carried to the distant organ from the seat of the original focus. That the organism may be effective in its colonized environment in otherwise healthy males and females is sufficiently proved by many case reports. As long ago as 1855, in its obstetric connection, Homans mentions a case of mumps in a pregnant woman which extended to the uterus and led to premature delivery, and more recently similar cases have been recorded by Rook, Salter and others.

On the other hand, parotitis following septic (?) abortion and puerperal infection has received attention from a number of observers. Beuttner saw two cases of pyemia following abortion, in one of which metastasis to the parotid and the buttocks occurred; and in puerperal infection similar instances are recorded by Charriers, Davis and others. In both Davis' cases, abscess of the parotid complicated puerperal septicemia, from which both patients appeared very ill. Both patients also had pneumonia, and one died.

Now, if a path, as yet unrecognized, exists correlating the parotid gland with abdominal and other organs and parts, it is quite logical to assume that the arrangement is a two-way function, a premise which, admitted, at once makes clear why invasion of the gland by pathogenic organisms takes place after surgical procedures and in local pelvic infections.

The bacterial organisms found in most of the reported cases is the *Staphylococcus pyogenes-aureus*. In Davis' cases, which appeared to be of streptococcic nature, no bacteria were found in the blood or lochia, but the parotid pus contained staphylococci. Legueu and Morel have, on the other hand, found the *Staphylococcus aureus* in the blood associated with infection of the field of operation, and believe that this organism is the cause of the parotid disease.

According to Henning (quoted by Hoffstatter), the course of puerperal parotitis may run afebrile, but usually the temperature corresponds to the severity of the infection.

TWO SOURCES OF GLAND INVOLVEMENT

From an analysis of reported case of postsurgical and obstetric parotitis it is apparent that the etiology of the gland involvement must be sought in two sources: first in a general, and second in a local, infection. In the first, the process is embolic (metastatic), that is, it conveys the germs of toxins to the parotid gland from the involved organ or part.

One point in this connection, which is possibly of considerable importance, and which thus far seems to have been overlooked by most writers, is that the parotid alone of the three salivaries contains lymphatic glands. The slowing or stasis of the blood or lymph stream at these points would give rise to an accumulation of the causative agent in sufficient quantities to overcome the resistance of the gland and bring about the inflammatory sequel.

The second source of infection is through Stenson's duct. From a study of the involvement of the parotid gland in other conditions, it is evident that the oral

cavity plays a more important rôle in the production of parotid bubo than is generally believed. The mouth contains a large and varied flora, which under ordinary circumstances is harmless; but some bacteria, after operations, may become virulent. The drying effect due to the anesthetic, and possibly due also to nervous influence in lessening secretion, the blood loss, the removal of water from the patient's body, due to limited intake of fluids and vomiting and possibly to mechanical insult, and the result of swabbing the mouth for the removal of mucus and vomitus all render the functionally disturbed gland increasingly susceptible to the invasion of the bacteria which, finding a suitable nidus in the abnormal tissues, at once develop a greater or less activity.

In the case I report, according to the nurse in charge, the mouth of the patient was foul from the beginning and the teeth were covered with sordes, before the emptying of the uterus was undertaken, and as the operation was conducted as aseptically as possible and no pelvic symptoms developed before the nineteenth day, when general infection was well established, I am of the opinion that involvement of the parotid gland in this instance was of oral, rather than of pelvic, origin.

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ABSTRACT OF DISCUSSION

DR. E. E. MONTGOMERY, Philadelphia: I have seen parotid infection follow various operative procedures and septic processes. In the great majority of cases, however, I was inclined to believe that the condition arose from transmission through the mouth rather than through the blood. The association of mumps with the development of orchitis and ovaritis has led to the belief that there is a very close relationship between these organs and the parotid gland, but all that can be said, I think, is that they were possibly more susceptible to the organisms which produced the glandular inflammation than other structures of the body.

DR. M. E. KLINGLER, Garrett, Ind.: I recall a case of lobar pneumonia in the right lung in which the patient, 32 years of age, aborted an early pregnency on the fourth day. This was followed on the next day by left-sided parotitis without formation of pus. On about the twentieth day there was a right-sided hepatitis, also without pus. Finally, on the thirty-fifth day an appendiceal abscess developed, which was opened and drained and the appendix removed. Subsequently there was a left-sided empyema on about the fiftieth day, followed by complete recovery.

DR. STEPHEN E. TRACY, Philadelphia: I have seen two or three cases of parotitis follow operation, but they all cleared up promptly. I am inclined to believe with Dr. Montgomery that in some of these cases the infection originates in the mouth. For that reason more attention should be paid to the condition of the mouths of our patients than has been done in the past. The profession is beginning to give this subject more consideration. It is well to bear in mind that a patient with soreness at the angle of the jaw may have a more serious condition than an infection of the parotid gland. A year and a half ago I operated on a patient who eight or ten days later complained of soreness at the angle of the jaw. I thought at the time that she was developing a parotitis. In thirty-six hours it was evident she had tetanus. It is well to keep this in mind, as such a condition requires prompt and energetic treatment.

DR. W. P. MANTON, Detroit: The condition which I reported following the emptying of the uterus is rare; at least, I have been unable to find any record of such a case in literature. Even up to the present time surgeons are claiming that these cases of infection of the parotid are sympathetic. I am not a believer in "sympathy" of that kind. That the infection may take place through the mouth is a well settled fact.

CLINICAL SUPERVISION OF THE WELL BABY DURING THE FIRST YEAR *

H. H. YERINGTON, M.D.
SAN FRANCISCO

With the enormous amount of work going on in Europe at this time, the need of more organized work in the conservation of child life is beginning to be felt in this country. This work has its foundation, for the most part, in our large public clinics, and the ones doing the greatest work are those having the proper organization for handling it.

Those of us who have spent many years in clinic and hospital work and are connected with teaching institutions have often felt that constructive work in the ordinary clinic is lacking, that great numbers of our patients go home with improper treatment and that the work on the part of the clinicians becomes monotonous.

It has seemed to me that the factors in making a children's clinic a success are the following: (1) a supervising head who is present at all times during clinic hours, capable of attending to the executive work, and directing the teaching; (2) individual care of the various patients by the same clinician; (3) the division of the clinic into different parts, each part headed by a clinician interested in a certain line of work, and a specialist in it; (4) the proper teaching of students, nurses and also mothers; (5) a close connection between the prenatal clinic and children's and obstetric services in the hospital; (6) the social service worker, who is indispensable in such an organization; also the convalescent home, which should be a part of the clinic.

DEVELOPMENT OF SPECIAL CLINICS

The plan of special clinics in the children's department of the Stanford University Medical School was developed several years ago under the direction of Dr. Langley Porter, the first being a special clinic in congenital syphilis starting in 1911. Since then the following have been established, each under a separate head: mental deficiency, prenatal, adolescence, children's chest clinic, well baby clinic, whooping cough, and a special division in the baby clinic for the instruction of mothers and students in dietetics.

The big advantage in developing clinics is that the patient gets much better care, the work of the student is more concentrated, and the clinician takes pride in developing his own side of the work and obtains valuable material for scientific research. As this paper deals with the supervision of the well baby during the first year, I shall consider only that part of the organization dealing with this subject.

In 1907 the mortality of the infants up to 2 years old in the San Francisco Foundling Home was 59.7 per cent. The next year the Associated Charities put their foundling babies in private homes, the food was ordinary commercial milk, and there was no special supervision. The mortality dropped to 12.5 per cent. These figures would seem to settle the case for the foster home. In 1909 the baby hygiene committee of the Collegiate Alumnae began to cooperate with the

* From the Division of Pediatrics, Leland Stanford Junior University School of Medicine.
* Read before the Section on Diseases of Children at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

Associated Charities. They made possible the use of certified milk and physicians rendered clinical and medical care.

From 1909, the mortality of the boarded-out infants continued to drop until in 1916 it was 2.67 per cent. in contrast with 8.7 per cent., the average death rate of babies of the same age in the city of San Francisco.

THE CLINIC AT WORK

The present system of the Associated Charities' work operates as follows: First, a home is carefully selected and the baby is placed in it. Second, the social worker and nurse watch the home and baby, certified milk is supplied, and the mother is taught how to modify the milk. Third, the baby is brought to the clinic every Friday and its feeding and care supervised by Drs. Holsclaw and Rude who deserve the credit for the remarkable work done by this organization. During 1917, 245 babies were cared for, of whom nine have died, the mortality being 3.67 per cent.

The problem of caring for infants in a general clinic is somewhat different and more complicated. The principal difficulty is in the fact that it is much harder to get the mother to cooperate than the foster mother, and the supervision over the babies is not as close. Feeling, therefore, that there was a big field in the education and care of the mother and child coming to our general clinic, we decided to establish a well baby clinic one day a week for these cases. Such a clinic was established a year ago last September and has been growing rapidly since.

In order to do any constructive work in a clinic of this nature a close association of the prenatal and adolescent work is indispensable. The adolescent clinic has been established two years, and is on a firm foundation, and a survey of its first hundred cases was made and published recently by Dr. Amelia Gates.[1] A movement has been started to teach adolescent girls infant hygiene and formula making by combining the two clinics together one day a week.

This year the prenatal clinic under the department of gynecology and obstetrics had a total of 942 visits, many of the mothers having already had the educational advantages of the baby clinic.

PROGRAM OF THE WELL BABY CLINIC

The plan adopted in the well baby clinic is as follows: The clinic is held every Friday morning in separate rooms fitted up for this purpose, with a reception room, weighing and examining room, and a large outer room with three desks for the clinicians. The histories are brought from the central history room, the baby is undressed and weighed and the weight reported by a volunteer worker. The social service worker supervises this work, discussing home conditions and needs of the parent, and the histories of the babies are then brought into the outer room to be observed by the physician.

The babies are brought for examination every week for the first three months, every two weeks from the third to the sixth month, and every month from six months to one year. They are transferred then to the general children's clinic. Every mother delivered in either the maternity ward in the hospital or in the outpatient obstetric service is given a card asking her to report with her child to the baby clinic when it is 3 weeks old. From May, 1917, to May, 1918, there were 2,146 visits to this clinic, 348 being new cases. Of 290 deliveries in the hospital 194, or 67.8 per cent., returned to the baby clinic. Of 126 deliveries on the outside service, fifty-three, or 42 per cent., returned. This shows a close bond between the hospital cases and the baby clinic.

In order to stimulate the work and keep a check on such a clinic, the social service worker, of course, plays the leading rôle. A card system is kept, postals are sent to those not attending the clinic, and if there are no responses the cases are followed up in the homes. At the present time, more than 200 calls a month are made by the social service workers connected with the children's clinic. In the organization of a clinic of this kind, intimate knowledge of the home surroundings of the infant is of great importance, and the sympathetic relationship between the social service nurse and the mother is imperative.

A STUDY IN INFANTS' WEIGHTS

It is somewhat early to tabulate data obtained in this clinic, but some of the following points may be of interest. Last year Faber and Murry began a study of weights of San Francisco infants. They took the weights of babies born in the maternity and outpatient obstetric services of Lane Hospital, and the babies coming into the clinic. If any child came for malnutrition or any chronic disease, his weight was discarded as abnormal, and twins and premature infants were excluded. There were 2,966 weights taken from 246 boys and 275 girls and thirty-four from infants whose sex was not recorded. The average weight at birth in this series was: males, 3,500 gm., and females, 3,311.7 gm., or an average of 3,432 gm. Holt gives an average of 3,345 gm., which is 87.3 gm. less than the foregoing.

They summarize the results as follows: The initial loss in weight is greater in San Francisco babies' averages by about 38 gm., and the return to the original weight occurs approximately the same time, that is, in ten days. At the end of the first month, the San Francisco babies are heavier than those recorded by Newman and Holt, but not as heavy by 77 gm. as those observed by Robertson of England.

By the end of the first year, however, this loss is made up and the San Francisco infant's weight is 329 gm. heavier than that of the baby of any other locality previously recorded. This gain over other infants is no doubt due to the evenness of the climate and the lack of any season unfavorable for growth. The breast-fed babies show this regularity in development particularly well. The maximum growth occurs in August and the two and three months following, and this agrees fairly well with the most careful similar records made by Bleyer.

INSTRUCTION IN INFANT FEEDING

In our method of feeding we have endeavored to instruct the mother to nurse her baby as long as possible, later adding bottle feedings, beginning with one a day when the child's weight becomes stationary or the mother's condition warrants it. Examination of the breast milk we have found of little value as compared to the clinical manifestation of a diminished milk supply. I have felt that formulas of the simplest kind should be used in such a clinic, both as a ground work for students and because of the simplicity in making up the formulas. Dilutions of certified milk

1. Gates, Amelia: Arch. Pediat., 1918, **35**, 236.

and water are used first and barley water substituted for water at the beginning of the third or fourth month. Cane sugar and one of the maltose and dextrin products have been the carbohydrate of choice, it being found that this combination regulates the bowels and is well handled by the great majority of our infants. At the age of 6 or 7 months, the feedings are changed from a three to a four hour interval, and fruit juices, cereals and broths are added, and at the age of 1 year a generous diet is given. The class in this course is limited to four students and covers a period of three months. They follow their own cases under the eye of an instructor, and with an average of fifty cases a morning, the instruction is very intensive. Both the caloric and the percentage methods are used in this work.

THE CONVALESCENT HOME

Last year the people of Palo Alto who are interested in the university subscribed a sum of $2,000 for the establishment of a convalescent home for the clinic children. It was open for three months during the summer and ninety children were cared for. This year a similar sum will be subscribed and we plan to accommodate about forty children a month for a period of three months. We cannot care for the infant of less than 1 year old as yet, but the home will be there for any building up the baby needs during the run-about period.

When I left San Francisco, the program of Children's Year had been launched, and the first week's work had proved more successful than any of us anticipated. In view of the fact that the Associated Charities, the University of California, and Leland Stanford Junior University all have well established baby clinics and that others are being organized, I feel that we in the Far West are laying the foundation for a big work in the reduction of infant mortality.

ABSTRACT OF DISCUSSION

DR. C. F. WAHRER, Fort Madison, Iowa: In the past it would have seemed foolish, if not silly, to have a clinic for the well, but what seems foolish in one age becomes the rule of life for another. A long time ago it was suggested that when a woman was expected to be confined, she should put herself in touch with her family physician and report any abnormalities. When I began practice thirty-five years ago it was the rarest occurrence for a woman to want me to confine her until she was in the second stage of labor. Sometimes I would be called on a case, and I had not the faintest idea until I arrived there whether it was a broken leg or a baby. Luckily for the poor patient, this state of affairs is passing, except in the most remote districts. In most cases now we are able to get the patient to report some time before, with much better results for mother and babe. Whenever a babe is born we have in the near future a potential patient, and the physician who attends the mother during the birth of the child, especially in the outlying districts away from the medical centers, should have the constant care of that child. The mother should be taught to be on the watch for symptoms of approaching trouble and keep the physician informed, and in this way many serious results would be avoided. This is easy now, as the physician is usually in telephone connection with all his patients.

DR. LOUIS H. SCHWARTZ, New York: I have conducted a "well baby" clinic for about twelve years. During that time we have taken care of about 11,000 babies. We have active social histories of about 10,000 babies. I was much interested in Dr. Yerington's description of his clinic. Our prenatal work has been well organized only recently. We have tried to get our babies as soon as possible after birth. With better organization we will get them much earlier than we do. These 10,000 family histories have been gotten in ten years by the same social worker, who speaks four or five languages. These babies represented 5,000 families—20,000 pregnancies of all sorts—stillbirths, miscarriages, full-time births, etc. Eight per cent. were miscarriages; about 1.5 per cent. were stillbirths; infantile deaths were about 12 per cent. Children up to 8 years of age were counted. That is to say, of the 20,000 pregnancies, 5,000 were useless up to the age of 8 years—in other words, a 25 per cent. loss of life. If we view that as compared with the lower animals, I wonder how much preventable death that represents. Put it in another way: The miscarriage rate in these families was 80 per thousand; stillbirths, 10 per thousand. The infant death rate as compared with the viable pregnancies, so to speak, is 131. Child death rate up to 8 years, per thousand pregnancies of all kinds, is 161, and child death rate up to 8 years as compared with a thousand viable pregnancies, is 178. That is to say, 178 of every thousand viable children die before the age of 8 years. For our children we might say we have a death rate of 64 at this clinic instead of 126 that the entire family has. The same class of patients before they came to our clinic had a general death rate of 126 per thousand. Under our care, in the same city, in the same surroundings, they have now a death rate of only 64 per thousand.

THE PRINCIPLES OF TREATMENT IN MERCURIC CHLORID POISONING

WITH RESULTS OF TREATMENT *

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CINCINNATI

Within the past two years there has been much work done in the various phases of mercuric chlorid poisoning. Before then, most of the work reported was of a therapeutic nature; but recently, new and important laboratory data have been contributed. These new data have certainly put the modern therapeutic measures to the test, discrediting many and placing a few on a firm basis.

The anatomic pathology has been well established. Every organ of the body is affected, the liver and kidneys bearing the brunt of the injuries. From a cloudy swelling the changes continue to fatty degeneration and necrosis. When the poisoning is severe, hemorrhagic inflammation may supervene.

Schamberg, Kolmer and Raiziss,[1] in their studies of the comparative toxicity of the various preparations of mercury used for therapeutic purposes, have shown in a long series of dogs that every animal develops evidences of nephritis of varying degrees after injections of both the soluble and insoluble mercury salts. The nephritis produced is primarily tubular, with frequent accompanying glomerulonephritis (hemorrhagic) in the severer instances. The changes in the tubular epithelium they attribute to a direct toxic degeneration of the cells by the mercury, and not to an inflammatory reaction depending on the elimination of toxic substances.

Mercury has been obtained from the blood of dogs within ten minutes after its administration by mouth.[2] Burmeister and McNally have shown that the kidney

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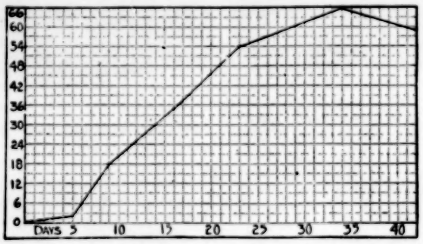
1. Schamberg, J. F.; Kolmer, J. A., and Raiziss, G. M.: A Study of the Comparative Toxicity of the Various Preparations of Mercury, Jour. Cutan. Dis., 1915, **33**, 819-840.

2. Burmeister, W. H., and McNally, W. D.: Mercury Poisoning, Jour. Med. Research, 1917, **36**, 87.

changes vary with the size of the dose in massive intoxication, and that the liver changes depend on the duration of the intoxication.

The important newer studies consider the question from a chemical standpoint. It is from this point of view that the present treatment must be evolved.

As the mercury is quickly taken up by the blood after ingestion, it is evident that all the tissues are quickly bathed with the toxic material. In a fatal case of mercury poisoning, it was found that almost one third of the mercury recoverable from the body was obtained from the blood.[3] In 1916, Lewis and Rivers[4] found that the retention of waste nitrogen was a factor in the production of early fatalities. More recently MacNider,[5] in an exhaustive study, has demonstrated some essential facts. Those animals that did not succumb from the early gastro-enteritis developed a severe type of acid intoxication, as evidenced by the production of acetone bodies, the reduction of the alkali reserve of the blood, and the increase in carbon dioxid content. Constantly associated with this acid intoxication was a kidney injury. He states that delayed kidney injury is not due to the action of the mercury as such during its elimination by this organ. He[6] had previously shown that acetone and diacetic acid are developed in nephritis produced by uranium, and that administration of alkaline carbonates lessened the toxicity of the uranium and delayed the formation of the acid bodies. Furthermore, when the kidney was protected by carbonate, it was found that the kidney remained functionally more active, and that there was a diminished acute swelling, fatty degeneration and necrosis of the renal epithelium.



Percentage of phenolsulphonephthalein output after a patient who developed anuria for three days began to void.

It is this work which has proved correct the therapeutic principles that I have employed in the treatment of mercuric chlorid poisoning.[7]

The symptoms of poisoning by mercury are well known: locally burns, and later vomiting and gastro-intestinal hemorrhages; as the toxemia progresses, oliguria, then anuria and finally "uremic" symptoms, as convulsions and death.

Many remedies, empiric and allegedly scientific, have been advocated in the use of mercury poisoning, but they seem not to have stood the test of time. We have used the alkaline treatment for more than three years, and our records show a lower mortality than that ordinarily reported.

3. Rosenbloom, J.: A Note on the Distribution of Mercury in the Body in a Case of Acute Bichlorid of Mercury Poisoning, Jour. Biol. Chem., 1915, **20**, 123.

4. Lewis, D. S., and Rivers, T. M.: Chemical Studies on a Case of Bichloride Poisoning, Johns Hopkins Hosp. Bull., 1916, **27**, 183.

5. MacNider, W. de B.: A Study of Acute Mercuric Chlorid Intoxication in the Dog with Special Reference to the Kidney Injury, Jour. Exper. Med., 1918, **27**, 519.

6. MacNider, W. de B.: The Inhibition of the Toxicity of Uranium Nitrate by Sodium Carbonate, and the Protection of the Kidney Acutely Nephropathic from Uranium from the Toxic Action of an Anesthetic by Sodium Carbonate, Jour. Exper. Med., 1916, **23**, 171-187.

7. Weiss, H. B.: A Method of Treatment of Mercuric Chlorid Poisoning, THE JOURNAL A. M. A., June 2, 1917, p. 1618; The Treatment of Bichlorid of Mercury Poisoning, Ohio State Med. Jour., 1917, **13**, 595.

The principle involved in the use of alkali is that of trying to counteract the acid intoxication produced, which in turn produces the generalized toxemic swelling and degeneration of all the body tissues.[8] When there is present oliguria, with blood and casts in the urine, we have evidences of acute kidney injury. This discernible kidney injury is merely an indication of an injury common to all the body tissues, for we know that the entire organism has been bathed by the mercury. The alkali is not given as an eliminant, but to counteract acid intoxication, edema and cloudy swelling, which, if permitted to go on, proceed to fatty degeneration and irreversible cell damage (necrosis).

Sansum,[9] in a recent paper, seems to believe that the basis for the use of alkali is to be found in its power to increase diuresis with a secondary washing out (increased elimination) of mercury. Because he finds no increased mercury elimination, he leads his readers to suppose that the use of alkali as a therapeutic agent is valueless. The alkali, however, is not used solely for its eliminatory action, but to inhibit and to counteract damage to the tissues which mercury, if left to itself, produces.

At present we can report on fifty-four consecutive cases of mercurial poisoning with but three deaths. Of the three patients that died, two received the treatment only after unavoidable delay, and one had a preexisting nephritis and cirrhosis.

METHOD OF TREATMENT

Essentially the treatment which I have proposed consists of an early washing out of the mercury salt from the stomach and intestine and continued introduction of sufficient alkali to overcome the acid intoxication.

The patient should come under observation as early as possible, for I have found that when the treatment is delayed for any reason, the symptoms produced by the mercury posioning become more difficult to control. Two patients of my series died, I think, because treatment was commenced too late.

I usually wash out the stomach with a mixture of 1 quart of milk and the whites of three eggs, following this by a saturated solution of sodium bicarbonate until the stomach washings return clear. Finally, before the stomach tube is removed, from 3 to 4 ounces of crystallized magnesium sulphate dissolved in from 6 to 8 ounces of water are allowed to remain in the stomach. A soap suds enema is then given.

Usually the patient vomits shortly after taking the mercury, thereby aiding in the elimination of the poison.

The next step is to introduce alkali, and we give the alkali by mouth, rectum and intravenously. As soon as possible after washing the stomach, the patient is given Fischer's solution intravenously. Fischer's solution consists of crystallized sodium carbonate, 10

8. Fischer, M. H.: Edema and Nephritis, New York, John Wiley & Sons, 1915.

9. Sansum, W. D.: The Principles of Treatment in Mercuric Chlorid Poisoning, THE JOURNAL A. M. A., March 23, 1918, p. 824.

gm. ($Na_2CO_3.10H_2O$), (or 4.2 gm. of the ordinary "dry" salt); sodium chlorid, 15 gm., and distilled water, 1,000 c.c.

Depending on the state of the circulatory system, from 1,000 to 2,000 c.c. of the solution are given intravenously as a first dose. We continue the alkaline medication by giving 8 ounces of "imperial drink" every two hours. This drink consists of: potassium bitartrate (cream of tartar), 4 gm. (1 teaspoonful); sodium citrate, 2 gm. (½ teaspoonful); sugar, 2 gm. (½ teaspoonful), and water, 240 c.c. (8 ounces).

This drink is flavored with lemon or orange juice. The patient is allowed large quantities of it.

There is no restriction in diet at any time during the treatment.

As an indication of the severity of the acid intoxication, and as a guide to the amount of alkali and salt that needs to be given, we use the analysis of the urine. Except in suppression cases (which were rare in our series), the patient voids large quantities of urine, the amounts depending on the amount of fluid taken. The urine should become alkaline to methyl red (a saturated solution of methyl red in alcohol) and be kept so, for Fischer has demonstrated that if the urine of a nephritic cannot be maintained alkaline to methyl red, the patient continues in a serious state. If the output of urine is not seen to be maintained, and if its reaction does not become alkaline to methyl red after the first intravenous injection, a second intravenous injection is given the following day, and general alkali administration by mouth or rectum is continued.

RESULTS

Under this treatment, there is usually produced and maintained a free secretion of urine which remains alkaline; and an output of albumin in the urine, which usually develops early, rapidly disappears. Ordinarily, two intravenous injections of the alkali, together with the solution of potassium bitartrate and sodium citrate, which is given at hourly or two hourly intervals day and night (when the patient is not asleep) has been found sufficient to keep the urine alkaline and to keep the output of urine normal. The blood and casts in the urine are usually quickly dissipated. The patient is kept under observation for about ten days after the urine has become normal, and is then discharged.

I have shown previously[10] that patients treated early show fewer symptoms and make a more rapid recovery than those in whom treatment is delayed.

We have performed phenolsulphonephthalein tests on most of our patients, and it is interesting to note that those who were treated early showed only slight or no diminution in phenolsulphonephthalein output. When the output was diminished, it rapidly rose to normal and continued so. In one patient who developed an anuria for three days,[10] the phenolsulphonephthalein output was practically zero for five days after he commenced to void, and then rapidly rose to 66 per cent. (as shown in the accompanying chart) at the end of thirty-three days. This patient's urine was normal six months after his recovery from the mercuric chlorid poisoning.

3314 Perkins Avenue, Avondale.

10. Weiss, H. B. (Footnote 7, first reference).

Value of Authorities.—Authority is useful as a factor in critical judgment; it is fatal as an object of worship.—E. P. Lyon.

THE PULSE AFTER A MARATHON RACE

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FRANCE

The question of the possibility of producing alternation of the pulse by very vigorous and prolonged exertion was the incentive to a study of the pulse of twenty men who ran the annual Boston Marathon of 25 miles from Ashland to Boston, April 19, 1916.

Myocardial exhaustion resulting from damage such as that produced by arteriosclerosis or syphilis has been shown to be an important cause of alternation of the pulse. The greater the strain on such a heart, the more marked is likely to be the alternation. The strain necessary to sustain a high blood pressure is especially likely to bring out alternation. Extreme and prolonged tachycardia, as in auricular flutter or paroxysmal tachycardia, may result in pulsus alternans. But it has never been shown, so far as I am aware, that alternation has been found in the pulse of a normal individual after severe exertion. Von Tabora[1] stated that he had been unable to detect pulsus alternans in cyclists who had covered the distance from Leipzig to Strassburg, a distance of 260 miles as the crow flies; no note was made as to the speed of the cyclists.

The Marathon run is probably as severe a physical effort as has ever been undertaken in athletic contests, and many of the men who finish are in a state of collapse after the race. It was from twenty contestants that radial pulse tracings were taken with the Mackenzie ink polygraph within five minutes of the time they completed the race. Tracings covering two or three minutes' time were taken in each case. Three polygraphs were used. The men investigated were all young and healthy. Their positions at the finish were: 3, 4, 6, 7, 8, 10, 13, 14, 16, 17, 18, 19, 20, 21, 22, 23, 25, 27, 29 and 32. Thirteen of them finished the 25 miles within three hours, and the third man in ran the race in two hours, twenty-eight minutes and thirty seconds.

No alternation of the pulse was found in any tracing. Marked sinus arrhythmia was found in two cases, but the only abnormal arrhythmia was one ventricular premature contraction found in the third man to finish. This premature contraction was not followed by alternation. The pulse rates as calculated from the tracings ranged from 72 to 107, with an average of 91. In general, the pulse is smaller after the race than before.

In 1915, the pulse of six of the runners was felt before and immediately after the race. The rates were: 64 before and 136 after, 86 and 120, 60 and 140, 62 and 108, 80 and 80, 118 and 110. The last man noted was the winner; he was obviously very nervous before the race, as he had good hopes of winning. These pulse rates were taken with the men standing, while the tracings were taken in 1916 with the men lying flat. The rapid vagal action probably accounts for the generally slower rates found in the latter group. No irregularity was felt in 1915. In the case of one runner who collapsed on the course and who was brought in by automobile to the finish, a thready pulse of 80 was counted. He seemed to be in a condition of shock.

1. Von Tabora, verbal communication to Gravier, L.: L'Alternance du cœur, Paris, 1914, footnote, p. 278.

Electrocardiograms taken in 1915 of the winner, Fabre, and of a runner who finished late in the list, showed nothing abnormal except possibly very slight prolongation of conduction time. They were taken two hours after the finish of the race. The winner had at the start of the race the highest pulse rate counted, 118. It was 110 when he finished.

SUMMARY

Marathon racing does not exhaust the healthy heart sufficiently to produce alternation of the pulse.

A FILTRABLE TOXIC PRODUCT OF THE HEMOLYTIC STREPTOCOCCUS*

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AND
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The following is a brief statement of the methods and results of experiments in which a filtrable substance toxic for rabbits has been obtained from cultures of hemolytic streptococci isolated in cases of bronchopneumonia occurring in Army camps. Though various workers at different times have obtained toxic materials from streptococci, yet we have so far been unable to find any report of methods or results directly analogous to these. The observations that led to the work were made simultaneously and independently by each of us.

The essential feature of the method was the cultivation of the streptococcus in a medium consisting of sterile, defibrinated rabbit's blood diluted with Locke's solution. The Berkefeld filtrates from such cultures were acutely toxic for rabbits, while uninoculated hemolyzed controls incubated for the same time were nontoxic. Toxicity in the culture medium did not appreciably appear before eighteen hours, reached its maximum at about forty-eight hours, and was still evident at ninety-eight hours. No definite relation between oxygen tension or anaerobiosis and toxicity of culture filtrates could be determined. Until the present time the greatest toxicity has been obtained from a blood-Locke's mixture that gave a reading of about 20 per cent. hemoglobin with a Sahli hemoglobinometer. A Locke's solution containing 0.15 per cent. of glucose has seemed most effective for dilution. This mixture when inoculated and incubated at 37 C. for forty-eight hours has yielded a sterile filtrate, 0.5 c.c. per kilogram of which killed three out of twelve rabbits injected simultaneously, while 1 c.c. per kilogram killed five out of six. This illustrates the fact that within certain limits there was a distinct individual variation in the susceptibility of different rabbits to a constant dosage. Six different strains of streptococci were grown in this medium, and all yielded toxic culture filtrates. When injected into rabbits, an incubation period varying generally from four to twenty-four hours elapsed before the symptoms appeared, the time depending to a considerable extent on the dosage. These symptoms were a slowly increasing weakness, accompanied often but not invariably by diarrhea, with death finally occurring with or without convulsions. Intravenous, subcutaneous or intraperitoneal injection gave death in about the same period of time. As controls, other nonrelated organisms were grown in the medium. Single strains of *Bacillus coli, B. lactis-aerogenes,* a gram-negative organism obtained from the air, and a hemolytic *Micrococcus catarrhalis* grew abundantly and produced hemolysis in the medium; but after filtration when injected into rabbits, no toxicity was demonstrated. This indicated that the toxicity that appeared in streptococcus cultures was not dependent alone on hemolysis.

While the medium described above is efficient in yielding a toxic filtrate, numerous experiments were carried out to determine some factor which, in the presence of the growing organisms, was necessary for the production of this toxic effect. Various modifications of meat infusion broth were invariably negative with the strains of organisms used. Rabbit's liver, spleen, kidney and heart muscle when washed free from blood and chopped and mixed with Locke's solution, while allowing a luxuriant growth of the organisms, gave nontoxic filtrates.

Rabbit blood serum did not yield any toxicity. If, however, the washed corpuscles from this blood were mixed with a volume of Locke's solution equal to that of the serum removed and the streptococcus grown in this medium for forty-eight hours, the resulting filtrate showed the full toxicity. The toxic product of the streptococcus growing in a medium of blood seemed, therefore, to be derived from some factor in the red blood cells. An attempt was made to separate the various constituents of the red blood cells to determine, if possible, which factor was the source of the toxic substance. Blood cells were washed with Locke's solution, and the stroma obtained in a pure, colorless condition according to the method of Woodbridge. No toxicity could be obtained from a medium consisting of Locke's solution and this purified stroma. A cholesterinized broth medium was negative. The filtrate from a culture in a colorless medium made by the precipitation of the blood pigments with chloroform from washed corpuscles, containing about 12 gm. of protein per liter, was nontoxic. Globulin obtained from washed corpuscles by the method of Morend was dissolved in alkaline Locke's solution and then neutralized. Growth of the organisms was excellent, yet large doses of the filtrate were nontoxic. The chemical preparation of these fractions obviously alters their native condition, yet the negative findings are of interest. These experiments, therefore, suggest at least that the toxic effect of the streptococcus growing in the rabbit's blood medium is due to a substance or substances elaborated in the interaction between the growing organisms and the hemoglobin fraction of the red blood cells.

Certain characteristics of this toxic substance were determined. It did not produce any hemolysis in vivo or in vitro, though the growth of the organisms in the medium itself caused extensive hemolysis. The toxic material was definitely dialysable through collodion membranes of the proper degree of permeability. While the dialysates were seldom as pigmented as the original medium, no toxic dialysates were obtained that were entirely colorless. Complete thermal inactivation occurred at 50 C. in thirty minutes without a demonstrable change in the physical properties. Heating to 45 C. for the same length of time gave no alteration in toxicity. Toxic culture filtrates showed

*From the Pathological Laboratory of the Johns Hopkins University.

a marked diminution in toxicity after standing a few days in the ice box. Exposure of a rabbit to sunlight did not increase the effect of a toxic injection.

Immunologic tests, as far as they have been conducted, yielded the following results: Toxic filtrates were injected into rabbits in increasing amounts. Immunity was acquired against multiple lethal doses. It was found possible, occasionally, by beginning with small inoculations, to double the dose at successive daily intervals without any noticeable reaction aside from variations in weight. Until the present time no attempt has been made to increase the immunity beyond six lethal doses; but the ease with which this degree of resistance was acquired would indicate that a much higher degree could be established. This immunity, at the end of about a month since the last injection, did not seem to be diminished. An immunity against the toxic product of one organism also gave an immunity against that of another. Blood from an immune rabbit conferred a certain degree of passive immunity on normal rabbits injected with lethal doses of toxic material. For example, a normal rabbit given 1 c.c. per kilogram of toxic filtrate intravenously died in thirty hours. Five other normal rabbits were given 2 c.c. per kilogram of the same toxic filtrate mixed with 0.1, 0.25, 0.5, 1 and 2 c.c. of defibrinated immune blood. Aside from a temporary slight weakness in those with the smallest amount of blood, no effect was evident. Immune serum also confers this passive immunity. Normal blood and serum did not have a comparable degree of protective power.

A series of rabbits immunized against toxic filtrates was given varying quantities of living virulent streptococci. Not only were they resistant against minimal lethal doses of the organisms, but in several of the animals large intravenous injections of the living cultures were tolerated. As much as 20 c.c. per kilogram of a culture gave no symptoms in a rabbit which more than a month previously had received the last injection of three lethal doses of a toxic filtrate. A normal control died in forty-eight hours with 1 c.c. per kilogram of the same culture. It was quite evident in this series, therefore, that immunity against the toxic product of the organisms gave an immunity against the organisms themselves, and that an active immunity persisted for at least a month. This immunity was also effective against strains of the hemolytic streptococcus other than that which was used as antigen.

The question as to whether immune serum will or will not confer a passive immunity against living organisms has not as yet been definitely determined.

The relation between the toxic filtrates and the virulence of the organisms is illustrated by one experiment in which one fifth of the lethal dose of toxic filtrate increased the rabbit's susceptibility to such an extent that one fortieth of the lethal dose of living culture caused death.

A few experiments have been carried out in which the pneumococcus and staphylococcus have been cultivated in the rabbit blood-Locke's medium in the same way and have been found to yield filtrates that were toxic for rabbits.

SUMMARY

It has been found that hemolytic streptococci grown in rabbit's blood diluted with Locke's solution yield a filtrate that is toxic for rabbits occasionally in doses as low as 0.5 c.c. per kilogram. The formation of this toxic material is dependent on the presence of hemoglobin. It is destroyed by heating to 50 C. for thirty minutes; it is dialysable; it requires a certain incubation period in the animal before exerting its toxic effects; it is nonhemolytic in vivo or in vitro; it slowly loses its toxicity on standing at ice box temperature; an immunity can be rapidly established against it, and the blood of immune rabbits when injected with the toxin has the power of neutralizing its toxic effects; rabbits immune against the toxic substance are resistant to living streptococci.

THE TREATMENT OF AMEBIC DYSENTERY WITH IPECAC BY RECTUM

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Brem and Zeiler,[1] in 1911, successfully used ipecac by rectum and through the appendix after appendicostomy in several cases of amebic dysentery that had not yielded to other methods of treatment. This method does not seem to have come into any general use. We have been using a similar method for about five years, although, up until recently, we were ignorant of Brem and Zeiler's work. Our number of cases has been somewhat limited, and it is only in the past year that we have been able to test this method to our satisfaction. Our method of procedure is to put 60 or even 120 grains of powdered ipecac into about 24 ounces of water; this is kept hot for an hour, but not allowed to boil. After washing out the bowel with warm water, this whole preparation, without filtering, is given slowly by rectum to be retained as long as possible. If there is much pain and tenesmus, only a part of this can be given. In a few of our cases, there was some discomfort and the treatment had to be slowed down. Formerly, we used this method of treatment, and, at the same time, gave the salol-coated ipecac pills. Later on emetin (alkaloid) came into use; we used this hypodermically and gave the ipecac by rectum. In two cases—which we are reporting—the ipecac was used by rectum without other treatment:

CASE 1.—J. T. M., white man, aged 63, presented himself for examination, Dec. 4, 1917, complaining that the rectum felt as if it would pull out, and of having from five to six stools a day. The general history was negative except for a severe typhoid at the age of 31. The present illness began five years before, while the patient was selling groceries in Roanoke, Va. He gradually commenced to have a diarrhea, which has been better at times and worse at others. In 1915 he was kept in bed one month and treated with quinin enemas. In the spring of 1916 he was given emetin hypodermically in rather large amounts, with salol-coated ipecac pills by mouth, and was also given chaparro amargosa without much improvement. In February, 1917, he was given arsphenamin intravenously with improvement for nearly four months, with relapse at the end of this time. Later on, he was given another treatment of arsphenamin without any improvement. Since then he had fared badly, as a rule; the bowel was always full of gas and there were from two to six movements a day, with some blood-tinged mucus. The man was undernourished, but in fairly good shape as a whole. Rectal examination revealed a large number of superficial yellow ulcers; the mucus from the rectum showed much pus, red blood cells and many large active motile amebas containing red blood cells. The Wassermann test was negative. The patient was given the ipecac

1. Brem, W. V., and Zeiler, A. H.: Medical Treatment of Amebic Dysentery, New Orleans Med. and Surg. Jour., July, 1911.

preparation by rectum every day, with immediate betterment of symptoms. The amebas, pus and blood soon disappeared from the stools, and for five and a half months he has had no trouble whatever. He has been using an occasional ipecac treatment during this time. At no time during this treatment has he been dieted in any way, or has he stopped his regular work.

Case 2.—H. E. D., man, developed amebic dysentery while a soldier in the Philippine Islands during the Spanish-American War. It took him a long time there to get well. He remained in good shape until about five years ago, when the dysentery increased, and, on presentation for examination, he showed very many motile amebas containing red blood cells; he also showed a heavy trichomonas infection. We began immediately to use the ipecac by rectum. The symptoms disappeared almost at once, and the amebas disappeared almost immediately from the stools.

We believe that the hypodermic emetin treatment for dysentery can be greatly aided by also giving ipecac by rectum. It certainly seems preferable to apply a treatment locally rather than have it traverse the whole alimentary canal before reaching the seat of the disease. It also seems better to use the ipecac, or some form of ipecac, by rectum rather than give it hypodermically where it will diffuse through all the tissues of the body by the time it reaches the seat of the disease. Since the barium enemas can be seen with the fluoroscope to pass up to the cecum, we believe this ipecac preparation very rapidly spreads to all the surface of the large bowel, where it can have a direct local effect and the soluble portion can be absorbed even into the deeper tissues. The administration of ipecac by rectum has the advantage that it can be used by the patient when away from his physician.

Clinical Notes, Suggestions, and New Instruments

A NEW CONTACT TEST FOR ALBUMIN IN URINE*

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Certain observations, made over a period of years, convinced me that a rapid and reliable contact method for the detection of albumin in urine was desirable. The method described is the outcome of nearly three years' work with various reagents.

Because of its general use and reliability, the heat test has been taken as a standard. A number of reagents, such as Tanret's solution, were tried out and found to be entirely too sensitive. Positive reactions were obtained with mucin and proteose in urines which were otherwise normal. Still other reagents, such as concentrated nitric acid, were found to be less sensitive than the heat test, negative reactions being frequently obtained with pathologic specimens.

The heat test, although very reliable, is too time consuming when a large number of specimens are to be examined. The use of acid in dissolving phosphate precipitates may also carry the albumin into solution, if only a faint trace is present. The agitation necessary to dissolve the precipitate completely may so diffuse the albumin that the reading is doubtful. The method described is very rapid and duplicates closely results obtained by the heat test. The technic of applying the test has been in use for a number of years, being formerly used for the nitric acid contact test.

*From the Pathological Laboratory, Base Hospital, Camp Gordon, Ga. The greater portion of this work was carried on while the author was assistant director at the National Pathological Laboratory, New York.

This solution being too concentrated for use, 100 c.c. should be diluted to 150 c.c. with distilled water. The dilute solution will keep.

Picric acid is an excellent protein precipitant, but for the detection of albumin in urine, it must be used in a concentration that will not give false positive reactions. After careful study the quantity given in the formula was found to meet this requirement. The citric acid will prevent the possible precipitation of phosphates. The magnesium sulphate, which

REAGENT *

Picric acid, wet	10 gm.
Magnesium sulphate	400 gm.
Citric acid	20 gm.
Distilled water	1,500 c.c.

* Picric acid, wet, is the product ordinarily supplied, containing 20 per cent. added water for safety in shipping. The magnesium sulphate used is the U. S. P. crystalline salt.

will precipitate serum globulin, is used primarily to give the solution a high specific gravity. This prevents diffusion of the reagent with the urine, the zone of contact remaining well defined.

TECHNIC

An ordinary, heavy wall culture tube, 150 by 15 mm., and a piece of glass tubing 20 cm. long, with a diameter of 6 mm. and 1 mm. wall are procured. The reagent is poured into the test tube to a depth of about 4 cm. It is advisable to use the centrifuged specimen, as the organized elements, in suspension, may give a false reaction, the same as with the heat test. The glass tube is introduced into the specimen to a depth of about 2 cm. The end of the tube is closed with the finger, as in using a pipet, and the tube is withdrawn and introduced into the reagent so that the level of the urine is slightly lower than that of the test solution. The finger is now removed and the urine and reagent will rise in the tube, giving a distinct zone of contact without diffusion. The tube may be removed to facilitate the reading, the finger being held between the light and the tube. In the presence of albumin a white ring will form, the intensity indicating the quantity. Faint traces, as found by the heat test, may be easily detected by this method. After each test the tube should be rinsed by being dipped in water. If the reagent in the test tube becomes cloudy, it should be discarded, as it is essential that the reagent and urine be clear. With a little experience, an estimation of the quantity of albumin can be as readily made as with the heat test.

RESULTS OBTAINED

A series of 725 specimens was examined by the heat test and with the new reagent. The sediment was also examined as a check on the chemical results. For convenience, the new reagent will be referred to as Solution B.

TABLE 1.—RESULTS OF TESTS

Negative.	Positive.	Positive with Heat.	Positive with Solution B
500	225	205	213

It will be noted from Table 1 that out of a total of 725 specimens, 225, or 31.03 per cent., were positive with either heat or Solution B, or both. Of these, 205, or 28.27 per cent., were positive with heat, and 213 or 29.38 per cent., were positive with Solution B. Out of the 225 positive specimens, twenty gave reactions with B which were negative with heat. With the heat test, twelve were positive which failed to react with the new reagent.

TABLE 2.—VARIATIONS DISCLOSED BY MICROSCOPIC EXAMINATION

Sediment—	Positive with Heat. Negative with Solution B.	Positive with Solution B. Negative with Heat.
Pathologic	8	14
Normal	4	6

The microscopic examination of all specimens confirmed the chemical results, except in a few cases, as noted in Table 2, in which it will be seen that positive reactions were obtained by both tests, in a few cases, in which the sediment was normal. Also a few pathologic specimens failed to react with one of the reagents, either heat or solution B. These variations were all found in urines showing only a trace or faint trace of albumin, and are to be expected.

Military Medicine and Surgery

THE PREVAILING PANDEMIC OF INFLUENZA

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During the past two weeks, August 28 to September 11, there has begun a severe and rapidly spreading epidemic of influenza in the First Naval District. More than 2,000 cases have been reported in these two weeks, and there are indications of a rapid spread of the infection. This is undoubtedly the same disease which, first heard of in Spain last spring, and hence called Spanish influenza, has in recent months spread over nearly all of Europe, including Germany, Italy, France, England and Ireland, attacking from 30 to 40 per cent. of the people. The outstanding feature of this epidemic is its high degree of communicability; in fact, in pandemics of this nature, influenza is the most contagious of all infections. The last pandemic (1889-1890) also moved from east to west along the lines of travel. We, therefore, have every indication that this outbreak will soon spread all over the United States. It doubtless has been carried to this country by patients or carriers aboard vessels. In fact, definite histories to this effect have been obtained from officers aboard vessels.

The disease is similar to the familiar endemic influenza, except that it is often more severe, the complications are more frequent and serious, and it shows an extraordinary degree of contagiousness. The number has increased to more than 2,000 within two weeks, in spite of early recognition and reasonable precautionary measures. It has attacked many of the physicians, nurses and hospital apprentices, thus unduly taxing the hospital service, in spite of the use of gauze masks and other precautions by all those in contact with the patients.

CHARACTERISTICS OF THE DISEASE

The incubation period is from one to two days. This was demonstrated by the first cases that developed in the hospital staff after the arrival of the first group of fifty patients. These patients were received Thursday afternoon, August 28, from the receiving ship at Commonwealth Pier, Boston. Blood cultures, blood counts and throat cultures were immediately taken by the laboratory officers, one of whom was suddenly taken sick with the disease the following Saturday morning. Another medical officer, who made the first physical examinations on Thursday, was also sick Saturday.

The onset is very sudden, the patient sometimes passing from an apparently well condition almost to prostration within one or two hours. There is no complaint of sore throat at any time, and no initial localized symptoms. In a few cases the patient attributes the attack to a slight sore throat or ill feeling a few days previously, but the majority give no such history. The fever rises rapidly to from 101 to 105 F. (38.3 to 40.6 C.), the patient usually complaining of severe headache, weakness, general malaise and pains of varying severity in the muscles and joints, especially in the back. As frequently described, the patient feels as though he had been beaten all over with a club.

The course is fairly constant. The patient lies in bed in a semistuporous condition, doubled up, with the covers pulled tightly over his head and neck. There are alternating chilly and warm sensations, but no paroxysmal chill. The face is flushed, the pulse from 100 to 120, the respiration from 20 to 30, the temperature from 101 to 105 F. A few have nausea and vomiting. Epistaxis is not uncommon. There are usually no gastro-intestinal symptoms, the tendency being toward a slight constipation.

After these initial symptoms, which are quite constant, a remission frequently occurs in the morning of the second or third day. In a small percentage of the cases the temperature may continue normal, with recovery. More frequently there is a secondary rise of temperature following the remission, accompanied by a coryza and slight bronchial cough. It is during this period that the disease probably is most contagious, being transmitted almost entirely by direct contact, and by droplet infection within a radius of a few feet.

TABLE 1.—LEUKOCYTE AND DIFFERENTIAL COUNT OF EARLY CASES FROM ONE WARD

Cases	White Blood Cells	Polymorphonuclears	Lymphocytes	Large Mononuclears	Transitionals	Eosinophils	Basophils
1	6,200	76	20	2	2		
2	6,800	85	38	1	5	....	1
3	5,400	77	14	3	6		
4	10,000	78	25	1	1		
5	5,600	44	50	...	6		
6	6,800	72	24	2	2		
7	7,200	80	20				
8	7,200	88	12				
9	4,400	54	44	2			
10	8,000	74	20	4	2		
11	6,800	68	30	2			
12	6,600	52	45	...	2	1	
13	4,200	60	40				
14	4,600	50	46	2	2		
15	5,200	52	46	2			
16	5,800	48	52				
17	4,200	48	52				
18	6,000	64	28	4	2	2	
19	7,200	72	26	...	...	2	
20	6,800	68	30	...	2		
21	4,600	66	34				
22	5,800	60	36	...	4		
23	8,000	75	24	...	...	1	
24	7,200	78	16	4	2		
25	4,400	58	36	6	6		
26	6,200	68	32				
27	5,000	70	28	2			
28	5,400	56	43	...	1		
Average	6,700	62.7	33.3	1.2	1.2	0.21	0.035

Following this secondary rise, the temperature in uncomplicated cases gradually returns to normal within a week, but the patient is usually still coughing, and feeling rather weak. It requires another week of convalescence before returning to duty is advisable, and then the patient fatigues very easily, and shows distinct effects of the infection. Relapses have not occurred in the short period covering this report.

The laboratory findings in the cases described above are rather constant and characteristic. Blood cultures taken at all stages of the disease have been negative. Improved technic may change this result, but this now appears doubtful, for the disease seems to be a toxemia. The white blood cell count in uncomplicated cases is below normal. The differential leukocyte count is essentially normal. Table 1 illustrates thirty representative cases, taken in one ward as the patients entered in the various stages of the disease, from the first to the third or fourth day. The urine in fully two thirds of the cases shows a faint trace of albumin, and numerous granular and hyaline casts. No case of

nephritis has developed. The urine is characteristic of a severe febrile and toxic disease. Table 2 shows the significant urinary findings in the cases of one ward, as they entered.

The remaining 5 to 10 per cent. of the patients in this epidemic develop a very severe and massive bronchopneumonia. Of the ninety-five cases of pneumonia

TABLE 2.—URINE EXAMINATIONS FROM EARLY CASES OF ONE WARD

Cases	Specific Gravity	Albumin*	Microscopic
1	1.029	Neg.	
2	1.025	F. T.	Many hyaline and granular casts
3	1.032	Neg.	
4	1.025	V. F. T.	A few granular and blood casts; many red blood cells
5	1.028	Neg.	
6	1.029	Neg.	
7	1.014	Neg.	
8	1.030	F. P. T.	Hyaline and granular casts
9	1.028	V. F. T.	A few hyaline and granular casts; also pus cells
10	1.028	F. P. T.	A few hyaline and granular casts; a few pus cells
11	1.028	V. F. T.	A few pus cells
12	1.028	V. F. T.	Many hyaline and granular casts
13	1.028	Neg.	
14	1.014	Neg.	
15	1.027	F. P. T.	Many hyaline and granular casts
16	1.031	V. F. T.	Hyaline casts and a few pus and red blood cells
17	1.016	F. P. T.	Numerous granular and hyaline casts; a few pus cells
18	1.026	F. P. T.	Granular and hyaline casts
19	1.029	V. F. T.	Many hyaline and granular casts; a few pus cells
20	1.023	V. F. T.	Numerous granular and hyaline casts
21	1.029	F. P. T.	A few pus cells
22	1.028	V. F. T.	Numerous hyaline and granular casts

* Abbreviations: Neg., negative; F. P. T., faint possible trace; V. F. T., very faint trace; F. T., faint trace of albumin.

in the hospital developing from the influenza, thirty-five patients have died, and another fifteen or twenty are desperately ill. This would indicate a final mortality of from 60 to 70 per cent. In a case of progressive or extensive involvement, the patient rarely recovers. The bronchopneumonia appears as a continuation or extension of the bronchitis, present in a large percentage, so that there is rarely any remission of the symptoms after the second or third day, and physical signs of pneumonia develop. The consolidation appears most frequently in the right inferior lobe, just medial to the inferior angle of the scapula. The same tendency has been noted in pneumonias in general, but especially in bronchopneumonias. It probably is due to the anatomic relation of the right bronchus, this bronchus presenting a larger opening than the left within the trachea, and being shorter, larger and in more direct line with the trachea than the left, so that gravity and direct extension would favor the first appearance of involvement in the posterior upper portion of the right inferior lobe.

The bronchopneumonia extends very rapidly to the left inferior, the right upper and middle lobes, and finally to the left superior lobe, so that in many of the earlier cases death is distinctly one of asphyxiation. In cases of longer duration a severe toxemia is evident. The leukocyte count is very variable, frequently maintaining the leukopenia that is characteristic of the initial disease (Table 3). This persisting leukopenia can usually be interpreted as due to an uncomplicated influenza bacillus pneumonia, since this organism apparently calls forth no defensive leukocytosis in the circulating blood. The necropsies have corroborated this interpretation. The accompanying chart illustrates such a case. More frequently, however, there is a leukocytosis, this representing a secondary infection with either the pneumococcus or the streptococcus.

A purulent effusion or empyema does not develop in the pleural cavity. This may be due partly to the short duration of the pneumonia before death. In the terminal stages, with embarrassed and failing circulation, there is frequently a serofibrinous effusion into the pleural cavity, most frequently unilateral and on the right side, varying in amount from 100 to 1,000 c.c. The cell count of this fluid is rarely over 5,000 per cubic millimeter, chiefly polymorphonuclears. This fluid usually contains pneumococci or streptococci.

The gross pathology revealed at necropsy shows a massive and largely confluent bronchopneumonia, thus frequently simulating a lobar pneumonia. In the early cases, however, and in the more recent areas of the later cases, the bronchopneumonic type is very evident. The cut surface has a mottled, firm, granular appearance, each bronchiole standing out as a grayish area, with intervening dark red alveolar tissue. The coarse, nodular consolidation of a typical bronchopneumonia is rarely present. A large quantity of blood exudes from the cut surface. In the more prolonged cases this rather uniform bronchopneumonic consolidation passes through a more firm, gray stage, and then to a characteristic condition of diffuse and confluent small abscesses. These may be seen from the surface as flat, grayish yellow areas maintaining the markings of the lung lobules. Creamy, grayish yellow pus exudes from the cut surface in all regions, leaving a slight reticulum of necrotic lung tissue.

The remaining organs are essentially normal in appearance, except for a moderate degree of congestion. The heart in one case was acutely dilated. The liver and spleen are slightly enlarged. The spleen

TABLE 3.—LEUKOCYTE AND DIFFERENTIAL COUNT OF PNEUMONIA CASES FROM ONE WARD

Case	White Blood Cells	Polymorphonuclears	Lymphocytes	Transitionals	Large Mononuclears	Basophils	Eosinophils	Temperature
1	26,200	81	18	1	...	..	..	104
2	29,000	89	10	1	...	..	..	100
3	14,400	73	26	1	...	..	..	104
4	14,600	80	19	..	...	1	..	100
5	13,400	71	24	3	...	2	..	104
6	10,050	82	17	1	...	..	..	99
7	37,000	77	20	1	2	2	..	102
8	17,600	75	16	4	5	..	..	102
9	29,500	91	8	1	...	..	..	100
10	17,700	78	19	2	1	..	..	103
11	10,600	78	20	2	...	..	..	99
12	7,000	88	10	2	...	..	..	99
13	13,000	80	20	..	...	..	..	102
14	17,000	87	10	3	...	..	..	104
15	13,600	86	12	..	2	..	..	102
16	28,800	82	14	2	2	..	..	102
17	4,000	78	19	2	1	..	..	103
18	14,800	96	4	..	...	..	..	104
19	12,600	70	28	2	...	..	..	103
20	12,200	84	16	..	...	..	..	103
21	7,800	67	29	3	1	..	..	101
22	6,400	66	34	..	...	..	..	104
23	7,400	53	46	1	...	..	..	101
24	10,000	56	42	2	...	..	..	99
25	3,600	84	16	..	...	..	..	104
26	16,800	56	36	3	...	..	1	99
27	6,800	56	40	4	...	..	..	104
28	9,000	61	36	3	...	..	..	99.5
29	12,200	82	16	2	...	..	..	103
30	15,800	76	22	2	...	..	..	100
31	19,400	78	18	2	2	..	..	103
Aver.	13,929	76.16	21.5	1.6	0.52	0.16	0.03	101.8

rarely shows the enlarged, soft, flabby condition so frequent in other forms of pneumonia. The cut surface is firm, dark red, smooth, and with indistinct markings. The kidneys are congested but otherwise of normal appearance. Microscopic examination of the tissues has not been completed, but will be made the subject of a separate report on the pathology of the disease, this being quite distinctive in the lung tissues.

BACTERIOLOGIC FINDINGS

The bacteriology of this epidemic has been the subject of special study, on account of the unusual severity and communicability of the disease, and its disputed relation to the common endemic disease known as influenza. The influenza bacillus has been generally accepted as the etiologic micro-organism of influenza. Pfeiffer discovered the influenza bacillus in 1892, two years after the great pandemic of influenza of 1889-1890. This pandemic spread rapidly over all parts of the world, attacking between 40 and 50 per cent. of the inhabitants and having a comparatively high mortality. The present pandemic is undoubtedly of the same character and is in all probability the same disease.

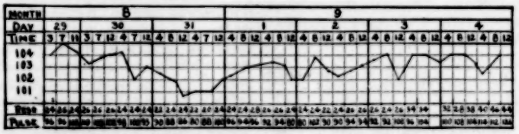
The reports of the bacteriology of the present pandemic in Europe serve only to confuse on account of their incompleteness. THE JOURNAL[1] and the London *Lancet*[2] have given the most recent reviews of the conflicting opinions in Europe, including the opinions of the French and the German investigators. The influenza bacillus was found only occasionally. Streptococci, pneumococci and the *Micrococcus catarrhalis* were recovered more frequently from the throat and sputum and occasionally from the blood. Little, Garofalo and Williams[3] selected a pleomorphic gram-positive coccus as the probable etiologic micro-organism, this in all probability being a pneumococcus of the mouth. Gotch and Wittingham[4] are inclined to attribute the disease to the *Micrococcus catarrhalis*.

In the present epidemic in the naval stations of Boston, throat cultures were made, streaked on blood agar plates, from more than 100 cases, and similar cultures made from washed selected bronchial sputum, in search of the influenza bacillus or other predominating organisms. As a control, a similar number of blood plate throat cultures were taken from convalescent hospital patients. In both lots the predominating organism was a gram-positive diplococcus, with a considerable green area surrounding the small gray colonies and frequently marked pleomorphism noted on smear, probably corresponding to the pleomorphic organism described by Little.[3] Approximately pure cultures of a hemolytic streptococcus occurred in 4 per cent. of the influenza cases, in comparison with 20 per cent. of the control cases. A few colonies of hemolytic streptococcus were found in an additional 16 per cent. of the influenza cases. In the influenza plates there were numerous small, colorless colonies, some of which stained typically as influenza bacilli. But similar colonies could be found in many of the control cultures, and they were by no means constantly found in either lot, so that no conclusions could be drawn from this source. These negative findings in throat cultures may be explained by the difficulty of isolating the influenza bacillus from mixed cultures. Also, it is probable that the focus of influenza bacillus infection is not in the pharynx, but is located in some recess of the nasal cavity, explaining the negative throat symptoms. In this respect the influenza bacillus would be likened to the meningococcus, which selects the posterior nasopharynx for most abundant growth, and the diphtheria bacillus, which usually selects the supratonsillar fossa for its primary focus.

Mouse inoculation of washed selected sputum was made in numerous cases. There was no uniformity of results. Almost all possible organisms were recovered in pure or mixed cultures, pneumococci, *Streptococcus viridans, Streptococcus hemolyticus, Micrococcus catarrhalis* or the influenza bacillus, or the mouse recovered. The sputum of the bronchopneumonia patients usually is not the tenacious, fibrinous, blood-stained sputum of pneumococcus pneumonia, but a purulent, opaque, greenish or yellowish red sputum, showing on smear a predominating gram-positive diplococcus. It resembles more that of the streptococcus pneumonias of the past winter.

The smears and cultures from the lung punctures and necropsies furnished the best evidence of the nature of the infectious process. Table 4, of the results of cultures taken directly from the lungs, shows that the influenza bacillus occurred either in pure or mixed culture in 82.6 per cent. of the twenty-three cases studied thus far. The only cases in which it did not occur were four, in which there were pure cultures of a hemolytic streptococcus. In six cases, or 31.6 per cent. of the positives, there were pure cultures of the influenza bacillus. It should be noted that these pure cultures were all in pneumonias of short duration, none of more than four days' and two of only two days' duration. The influenza bacillus was found in no case in the pleural fluid or in the heart's blood (Table 5). In direct smears from the lung tissue a very small coccobacillus, characteristic of the influenza bacillus, could be identified in many cases with a methylene blue stain, but with difficulty with a gram stain on account of its small size and poor staining qualities. By this means pure cultures and predominant cultures of the influenza bacillus can successfully be predicted from lung smears. It is found almost entirely within polymorphonuclear leukocytes, and in considerable numbers within individual cells, but not within all cells.

The most common secondary invader is the pneumococcus, occurring in thirteen of the twenty-three cases tabulated, or 56.5 per cent. Six of these, 46.1 per cent., were the Type II pneumococcus, two the Type III pneumococcus, and five the Type IV pneumococcus. One patient had both a Type III and a Type IV pneumococcus infection. The differentiation of the Type IV pneumococcus and the pleomorphic forms of the *Streptococcus viridans* is not without



Clinical chart of an uncomplicated influenza bacillus pneumonia. The patient died September 4. Leukocyte Counts:

	Influenza	Pneumonia	
	August 29	September 1	September 3
Total	6,800	8,800	5,200
Polymorphonuclears	68	64	74
Lymphocytes	30	32	26
Transitionals	2	4	..

1. "Spanish Influenza," editorial, THE JOURNAL A. M. A., Aug. 24, 1918, p. 660.
2. Bacteriology of the "Spanish Influenza," Lancet, London, 1918. **2**, 177.
3. Little, T. H.; Garofalo, C. J., and Williams, P. A.: Lancet, London, 1918, **2**, 34.
4. Gotch, O. H., and Wittingham, H. E.: Brit. Med. Jour., 1918, **2**, 82.

difficulty, and some of these on further study may be found to fall within the *Streptococcus viridans* group. Bile solubility tests of broth cultures were not found very reliable for identification of the pneumococci, some of the fixed types, identified by agglutination, not showing a distinct bile solubility. Hence morphology was relied on in the doubtful Type IV cases.

TREATMENT

This frequency of the pneumococcus, especially the Type II pneumococcus, brings up the question of the possible value of sputum typing and antipneumococcus serum therapy in these pneumonias. First, it is noteworthy that no case of a Type I pneumococcus has thus far occurred in the outbreak in this locality. This indicates that the infecting pneumococcus is a common mouth inhabitant, since Type I pneumonias are rarely met at the present time. The second point of interest is the fact that no pure infection with the pneumococcus has yet occurred. In every case of pneumonic complications the influenza bacillus was also recovered from the lung cultures, frequently in as great numbers as the pneumococci or in greater numbers. Considering the presence of six cases of pure influenza bacillus pneumonia, the interpretation is that the influenza bacillus is the primary invader in every case, sufficient in itself to cause a rapidly fatal pneumonia, and that the pneumococcus acts entirely as a secondary or terminal invader. It is questionable if serum therapy, and especially Type II antipneumococcus serum, would have much influence altering the course of the disease.

However, sputum pneumococcus grouping and antipneumococcus serum therapy should be tried in selected cases. By selected cases is meant those in which the patients are bringing up typical pneumococcus sputum and have a marked leukocytosis, showing that this organism is the predominating one. Indiscriminate routine typing of all cases that show a patch of bronchopneumonia is an impossible task in the present emergency, as well as of doubtful value, for in all cases at necropsy there is found a distinct bronchopneumonia, although at times of such massive and confluent character as to be distinguished with difficulty from lobar pneumonia. A significant feature recently noted is that a separate type of infection may occur in the two lungs, one being both an influenza bacillus and a pneumococcus infection, while the other lung may give a pure culture of a pneumococcus, a streptococcus or a *Micrococcus catarrhalis*.

TABLE 4.—LUNG CULTURES

Case	Influenza Bacillus	Pneumococcus	Streptococcus Viridans	Streptococcus Hemolyticus	Micrococcus Catarrhalis	Staphylococcus Aureus	Day of Pneumonia	Pleural Effusion	Blood Culture
1	+	—	—	—	—	—	4	+	—
2	—	—	—	+	—	—	3	—	—
3	+	+(II)	—	—	—	—	10	+	+
4	—	—	—	+	—	—	4	+	+
5	+	—	—	—	—	—	4	—	—
6	+	+(II)	—	—	—	—	7	+	—
7	+	+(IV)	—	+	—	—	3		
8	+	+(IV)	—	—	—	—	9	+	—
9	—	—	—	+	+	—	5		
10	+	+(II)	—	—	—	—			
11	+	+(II)	—	—	—	+	4	+	—
12	+	—	—	—	—	—	4		
13	+	+(IV)	—	—	—	+	12	—	+
14	+	+(II)	—	—	—	—	6	—	+
15	+	—	—	—	—	—	2		
16	+	—	—	—	—	—	4	+	—
17	—	—	—	+	—	—	5	+	+
18	+	+(IV)	—	—	—	—			
19	+	+(III-IV)	—	—	—	—	6		
20	+	+(IV)	—	—	—	—			
21	+	+(III)	—	—	+	—			
22	+	—	—	—	—	—	2	+	—
23	+	+(IV)	—	—	+	+	..	+	+

The *Micrococcus catarrhalis* is a fairly frequent secondary invader found in the lungs and in one instance in pure culture in the heart's blood. The *Staphylococcus aureus* occurs infrequently and in small numbers.

THE INFLUENZA BACILLUS

The interpretation of these bacteriologic findings is that the influenza bacillus is the primary invader in all cases of pneumonia accompanying this outbreak of influenza. This pneumonia is always a bronchopneumonia and is frequently complicated by a secondary infection with the pneumococcus or the streptococcus, and less frequently with the *Micrococcus catarrhalis* and the *Staphylococcus aureus*. Separate, double or triple secondary infections may occur.

This tendency of the influenza bacillus to grow in symbiosis or in an ancillary relation with other organisms in the lungs is not necessarily due to the more virulent nature of the secondary invaders, but may be due to a well-recognized property of the influenza bacillus to grow much more luxuriantly in the presence of certain other organisms, especially the staphylococcus, but also the pneumococcus, the streptococcus and numerous other organisms. This is most strikingly illustrated in plate cultures of the influenza bacillus, by the colonies in the vicinity of a staphylococcus colony. These colonies grow to giant size, from 2 to 3 mm. in diameter, in comparison with the remote influenza colonies which remain barely visible at the end of four or five days.

TABLE 5.—HEART'S BLOOD CULTURES AT NECROPSY

Case	Influenza Bacillus	Pneumococcus	Streptococcus Viridans	Streptococcus Hemolyticus	Micrococcus Catarrhalis	Staphylococcus Aureus
1	—	—	—	—	—	—
2	—	—	—	—	—	—
3	—	II	—	—	—	—
4	—	—	—	+	—	—
5	—	—	—	—	—	—
6	—	—	—	—	—	—
7	—	—	—	—	—	—
8	—	—	—	—	—	—
9	—	—	—	—	—	—
10	—	IV	—	—	—	—
11	—	II	—	—	—	—
12	—	—	—	—	—	—
13	—	—	—	+	—	—
14	—	—	—	—	—	—
15	—	—	—	—	+	—

The influenza bacillus in this study was identified by the small size and colorless appearance of the colonies, which were almost imperceptible at the end of

twenty-four hours, and then visible only by reflected light. Around a staphylococcus colony they have a distinct gray color on account of their larger size. They are moist and easily removed with a platinum wire and readily emulsify in salt solution. Microscopically, the influenza bacilli appear as exceedingly small gram-negative coccobacilli. There are no specific agglutination or fermentation tests available for further identification of the influenza bacillus. It is nonpathogenic for all laboratory animals except in a few reported instances of monkey inoculation in which the characteristic disease was reported to have resulted.

A fixed strain of the influenza bacillus, such as this organism must be, to act in such a virulent and pandemic manner, has never previously been available for the study of specific serum reactions. The bacillus was not discovered until after the great pandemic of 1889-1890, and there has been no similar pandemic of influenza since, until the present. Work on the specific serum reactions of this strain of the influenza bacillus is now in progress, and it is hoped that specific reactions will be found, probable toxins demonstrated, and possible antitoxins or vaccines prepared that will prove of use in prophylaxis, or in clearing up the chronic reinfective condition so frequently remaining after the first acute symptoms.

The focus of the primary infection most certainly is in the upper respiratory passages, but it gives rise to practically no localizing symptoms during the first day or two of the disease. Then it attacks the nasal mucosa and usually the bronchi. A sore throat is never complained of in the typical cases. Other organisms usually predominate in the pharynx. Further study should locate more specifically the primary focus of infection and the location in carriers.

Speculation as to the probable cause of the beginning of this pandemic of influenza suggests that it may bear some relation to the congregation of such enormous numbers of troops in Europe; that an original slightly pathogenic influenza bacillus, by passage through many individuals in a short period, has become a fixed, highly pathogenic strain of the influenza bacillus.

In the beginning of this study of the etiologic organism of the prevailing pandemic of influenza, an experiment was performed in conjunction with Dr. M. J. Rosenau, director of the Naval Hospital laboratory, on nine volunteers from the Deer Island Naval Training Camp. These men had not been exposed to the disease, there having at that time been no cases at Deer Island. The experiment was for the purpose of determining whether or not the disease was due to a filtrable virus. Certain features of the onset and course suggest strongly a similarity to dengue, yellow fever, trench fever and pappataci fever.

The experiment consisted of introducing the filtrate of the washings from the nose and throat of two cases of influenza into the anterior nares of nine volunteers. The influenza cases selected were typical, with definite history of recent exposure. One was in the second day of the disease and the other in the fourth day. The nose and throat of each patient was washed and gargled with 75 c.c. of sterile physiologic sodium chlorid solution. Throat swabs and sputum were added to the separately collected washings. Each was shaken with beads in a sterile bottle and filtered through a Mandler diatomaceous earth filter by means of a water vacuum pump. One filter had a positive pressure value of 9 pounds and the other of 12 pounds. Cultures were made from the clear filtrates for control. The filtrates were then carried to Deer Island, where about 0.5 c.c. was introduced into the anterior nares of each of the volunteers, five receiving the filtrate from one case and four from the other. Three and one-half hours had elapsed from the time of obtaining the nasal washings to the time of the nasal instillation. The control cultures were negative for bacterial growth, and none of the nine volunteers have shown symptoms of the influenza during ten days of isolation.

These men of the U. S. Navy are especially to be commended for their fine spirit in being willing to take chances of serious sickness for the sake of advancement of knowledge of the disease. The nature of the experiment and the possibility of serious consequences were fully explained to them. Their names are: J. E. Kiley, F. J. Hogan, F. B. O'Neill, P. G. Woods, L. C. Berg, H. L. Robertson, T. E. Null, T. A. Walker and H. A. Maronowitz.

In the other portion of the work thanks are due Dr. J. M. Brister, Dr. M. J. Rosenau, Dr. E. W. Goodpasture, Dr. William R. Redden, Dr. F. L. Burnett and Dr. F. N. Rapoport of the U. S. Naval Hospital, Chelsea, Mass., medical staff, for their assistance in examination and report of the cases.

SUMMARY

A rapidly spreading pandemic disease was first recognized at the U. S. Naval Hospital, Chelsea, Mass., Aug. 28, 1918, the first patients coming from the receiving ship at Commonwealth Pier, Boston. It has been carried to this port from Europe, both by patients and by carriers. It promises to spread rapidly over the entire country, attacking between 30 and 40 per cent. of the population, and running an acute course of from four to six weeks in each community.

This disease is characteristic of the ordinary endemic influenza, but is more severe and much more contagious. It is caused by a specific virulent strain of the influenza bacillus, against which individuals of the younger generation have relatively no immunity.

In from 5 to 10 per cent. of the persons afflicted, it develops into a massive and very fatal bronchopneumonia. This pneumonia is primarily caused by the influenza bacillus, this micro-organism being recovered from 82.6 per cent. of the lungs at necropsy, in 31.6 per cent. of which it is found in pure culture. The pneumonia is frequently complicated by pneumococcus or streptococcus infection.

The disease is characteristic of a sudden and severe toxemia, the influenza not being in the blood at any stage. It is not due to a filtrable virus. This was determined by introduction of the filtrate of nasal and throat washings from two typical cases into the anterior nares of nine volunteers, with negative results.

U. S. Naval Hopital.

Administering the Birth Registration Law.—Administrative history seems to indicate that it is easier to enforce a law on a new subject than it is on one that radically changes existing practices. It is this latter condition that has met most officers in the effort to enforce model birth registration laws. With the enactment of a model registration law in Kansas in 1911 it was found that it was not only necessary to put into active operation the new law, but to break up the old habits of reporting and not reporting.—W. J. V. Deacon, M.D., State Registrar.

INFLUENZA AT NAVY BASE HOSPITAL IN FRANCE*

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The present epidemic of a disease which in its clinical aspects resembles influenza is the most extensive of its kind since the great pandemic of 1889-1890. For several months frequent references have been made in foreign newspapers and medical journals to the prevalence of this epidemic in Spain, France, Switzerland, Germany, Great Britain and Ireland. On the western front both armies seem to have been sufferers. As an example of its military importance, 1,439 cases occurred in a military camp within three weeks,[1] and this appears to have been no very unusual record.

Concerning the infectious cause of the present influenza epidemic there is no unanimity of opinion. The Pfeiffer influenza bacillus has been isolated from a varying proportion of patients; but many observers have failed to find this organism with any regularity.[2] It is quite possible, indeed, that this organism is not responsible either for the present epidemic or for the pandemic of 1889-1890. On account of this uncertainty as to the etiology of influenza, the diagnosis must for the present be based mainly on its clinical and epidemiologic characteristics.

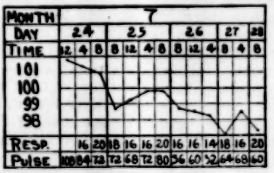

Fig. 1.—Temperature chart of a mild case of influenza.

GENERAL FEATURES OF THE LOCAL OUTBREAK

Before influenza assumed epidemic proportions in this hospital, a number of patients had been admitted who were suffering from complications and sequelae of the disease. No special effort was made to isolate these patients. Occasional cases have developed from time to time in the hospital wards, but at no time has the disease spread to any great number of ward patients.

One of the earlier definite cases among the hospital personnel was that of an officer who had recently returned to the hospital from a city where influenza was prevalent. Following his illness the disease appeared in slow succession among a small number of officers, nurses and enlisted men. It is doubtful, however, if these cases, which were more or less isolated, would have attracted much attention had there not been an epidemic elsewhere or had they not been followed by an explosive outbreak among the hospital personnel.

July 16, 1918, nineteen Hindus, who were from a single vessel and who had just become ill with influenza, were admitted to the hospital. Up to this date very few of our enlisted men had suffered from influenza. On the same day that the Hindus were received, however, two members of the hospital corps became ill. Since an epidemic among the enlisted personnel had been anticipated for some time and since it now seemed imminent, an order was issued by the officer in command that all enlisted men suffering from influenza should enter the hospital as patients. For two and a half weeks the disease spread rapidly through the personnel. The number of enlisted men who were admitted to the hospital during this time was: July 16, two; July 17, one; July 18, three; July 19, one; July 20, two; July 21, four; July 22, seven; July 23, nine; July 24, five; July 25, two; July 26, four; July 27, none; July 28, six; July 29, four; July 30, three; July 31, none; August 1, two; thereafter up to August 20, none. In eighteen days, therefore, fifty-five members of the enlisted personnel suffering from influenza were admitted as patients to the hospital. Including five who had the disease shortly before, the morbidity among the enlisted men was 37 per cent. During these eighteen days, nineteen nurses contracted the disease. These, together with four who had had it shortly before, made a morbidity of 40 per cent. among the nursing staff. Finally, of twenty-nine officers, fifteen had influenza during the epidemic. Of the total personnel at the hospital, 41 per cent. were known to have contracted the disease, and the vast majority of these became ill between July 16 and August 2, inclusive. After August 2 there were no new cases among the enlisted men, one doubtful case among the nurses and one reinfection among the officers. The epidemic had ceased, apparently because all those susceptible to the infection had acquired it.

It is certain that influenza existed in the hospital prior to the admission of the Hindus, and for this reason the epidemic cannot be definitely attributed to their admission. Nevertheless the presence of these patients probably accelerated the spread of the infection, for many of them had a marked bronchitis and it was several days before they could be taught to use sputum cups. Furthermore, an unusual proportion of cases developed shortly after their admission among those nurses and corpsmen who were attached to the ward that contained the Hindus.

Second attacks of influenza in the same individual seemed to occur in six or seven instances. The second attack usually followed several weeks after the first. Since the diagnosis was based solely on clinical findings, and since these do not differ in any characteristic manner from a number of other mild infections, it is not possible to be certain that the two attacks were always due to the same infection. However, we gained the impression that in some instances at least the immunity left by the first attack of influenza did not protect from a second attack of the disease a few weeks later.

CLINICAL CHARACTERISTICS

The subjoined summary of the clinical manifestations of influenza in this small epidemic is based on the records of the nineteen Hindus and the fifty-five members of the enlisted personnel, all of whom had been admitted to the hospital wards. As the disease was more serious among the Hindu patients, a distinction between these and the enlisted men will occasionally be necessary.

* From the Medical Service of U. S. Navy Base Hospital No. 2.

1. Averill, C.; Young, C. G., and Griffiths, J.: The Influenza Epidemic in a Camp, Brit. Med. Jour., 1918, **2**, 111.

2. Bacteriology of the Influenza Pandemic, Brit. Med. Jour., 1918, **2**, 139. Matthews, J.: Preparing Medium for the Culture of the Pfeiffer Influenza Bacillus, Lancet, London, 1918, **2**, 104. Dr. G. D. Barnett made several unsuccessful attempts to demonstrate influenza bacilli in the sputum and nasopharyngeal smears from our patients.

The onset was at times sudden; at other times it was gradual and the patient remained at work for one or more days before he reported ill. The initial symptoms were in most instances headache, backache, malaise, chilliness and pains in the extremities. Several complained of pains in and above the eyeballs. A few of the enlisted men and a considerable number of the Hindus complained of abdominal pain during the first day or two of the disease. Irritation of the upper respiratory tract occurred in about two thirds of the patients. This usually consisted of a dry,

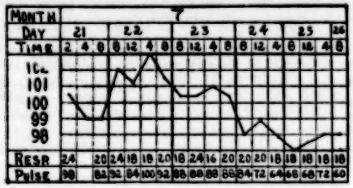

Fig. 2.—Temperature chart of a case of influenza in which the main rise of temperature occurred on the second day in the hospital.

hacking cough or of soreness of the throat. Less commonly there was hoarseness, a sense of rawness beneath the sternum, or a cough productive of sputum. The last was the rule among the Hindus.

Examination at the onset showed in most instances some reddening of the pharynx, which commonly involved the anterior pillars. The tonsils were rarely swollen, and the glands at the angle of the jaw were not palpable. When the cough was productive, bronchial râles could be heard over the lungs; but otherwise the respiratory sounds were normal. There was no enlargement of the spleen, no swelling of the lymph glands and no abdominal tenderness or rigidity.

Mental dulness and apathy were common, and in some instances the patient was continuously drowsy and slept most of the first forty-eight hours of his illness. In other instances, the headache, backache or pains in the extremities, together with a general irritability, made the days uncomfortable and the nights restless.

Nearly all patients showed considerable fever. Among the Hindus all but one showed a maximum temperature of 103 or over. Among the enlisted men the average temperature was 102, but it varied from a few whose temperature hardly exceeded the normal to one whose maximum was 105.6. In several patients who developed the disease in the hospital wards, the temperature rose abruptly; but it may also rise gradually. In thirty enlisted men the temperature was highest on the day of admission to the hospital, in seventeen it was highest on the second day, while in one it was highest on the third day. In uncomplicated cases the fever lasted from one to six days, with an average duration of about three days. The fall was usually by lysis. When the fever lasted more than six days in our patients, bronchitis or bronchopneumonia was present. Representative temperature charts are reproduced herewith.

The pulse rate was accelerated but usually not in proportion to the rise of temperature. For example, the temperature of 105.6 was accompanied by a pulse rate of 104, while pulse rates below 100 with temperatures above 103 were common. Among the Hindus, the pulse rates were somewhat more rapid than among the enlisted men; but they were still slow relative to the temperatures. When serious pulmonary complications were present, the pulse became rapid. It seemed to us that the pulse furnished a better indication of the severity of the infection than did the temperature.

Leukocyte counts made at the onset in seven uncomplicated cases showed from 5,000 to 8,000 to the cubic millimeter. In three Hindus who subsequently developed bronchopneumonia the counts were 8,600, 9,200 and 10,000. Faint traces of albumin were found in thirty of forty urines examined during the early stages of the disease. In two others there was a heavy cloud of albumin. Casts were found in eight urines. Later examinations in a number of these cases showed a normal urine after subsidence of the infection.

Convalescence was commonly marked by an unusual degree of prostration and by unusual exhaustion on slight exertion. These symptoms usually passed off in from three to five days after the temperature had become normal, but in a few instances they lasted a week or more.

The only serious complication among these patients was bronchopneumonia. This was suspected in two or three of the hospital personnel. It was definitely diagnosed in four of the nineteen Hindus, the diagnosis being based on the considerable number and persistence of râles, the protracted fever, the rapid pulse rate and the serious character of the illness. In only one of these patients were the usual signs of consolidation demonstrable. Of these four patients, two died. These were the only deaths in this local epidemic.

We have had the opportunity to observe the complications and sequelae of influenza in a considerable number of patients who have been sent to the hospital. Without going into detail, it may be said that the most common sequelae observed were infections of the lungs and pleurae, particularly fibrinous and serofibrinous pleurisy, empyema, persistent bronchitis and bronchopneumonia. Prostration and continued cough have frequently given rise to a suspicion of pulmonary

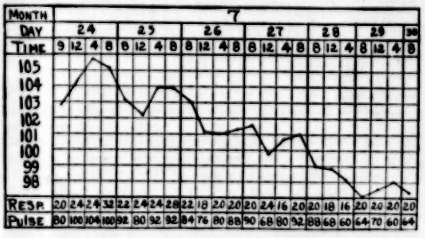

Fig. 3.—Temperature chart of a severe but uncomplicated case of influenza.

tuberculosis. Less common have been cardiac disturbances which were characterized by breathlessness, palpitation, precordial pain and rapid pulse. In a number of patients the symptoms have been those of neurasthenia or less commonly of a marked and persistent general asthenia.

The treatment used was expectant and symptomatic. With the onset of fever the patient was sent to bed and was kept there until the temperature had been normal for at least forty-eight hours. If pains in the head, back and extremities were troublesome, acetyl-

salicylic acid was given in doses of 15 grains every three hours until six doses had been taken. If the patient could not sleep, 5 grains of barbital were given at bedtime. Oily sprays lessened the irritation in the upper air passages. By these means the early discomforts were diminished. Since the chief danger of the infection arises from complications and sequelae, care to avoid these should be taken. The spread of bronchopneumonia is probably increased when many patients are treated in confined quarters. Under such circumstances special precautions should be taken against contact and droplet infection. On account of the danger of cardiac and neurasthenic sequelae, convalescence should be prolonged until the patient can carry on his usual duties without fatigue.

CONCLUSIONS

The present widespread epidemic of influenza is comparable to that which swept over the world in 1889-1890. The percentage mortality is very low, but the total mortality is probably considerable on account of the high morbidity. Under unfavorable conditions of lessened individual resistance and overcrowding, the percentage mortality may also be high. For example, a ship's surgeon informed us that of fifty Hindus who contracted the disease, he lost fifteen with pulmonary complications.

The clinical features of this disease, together with its rapid spread to a large number of individuals, give it a definite character. The clinical features alone do not suffice to mark it off clearly from the sporadic cases of "influenza" that occur from time to time in every community. If the disease continues to spread in a manner comparable to that of 1889-1890, an opportunity to study its etiology will be given to bacteriologists in the United States.

Training the Disabled in Great Britain and Ireland.—According to the *Vocational Summary*, published by the Federal Board for Vocational Education, the British ministry of pensions publishes each month a list of training courses for the reeducation of disabled soldiers in the United Kingdom. Training courses have been provided in many different lines, and in many different communities. The courses are given by public and private schools, colleges and institutes in every section of the country, as well as in factories and workshops. The list of courses for May, 1918, printed in the *Summary* shows a list of subjects of the greatest variety taught in many communities. This plan is of interest to the people of the United States who are preparing a national scheme of reeducation under the Smith-Sears Act for vocational training.

LABORATORY AS AID IN CONTAGIOUS DISEASE ADMISSIONS IN CANTONMENT HOSPITALS

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A. E. F.

Early last winter it was found at Camp Grant that the receiving officer, who admitted all patients, could not give time for the necessary examination of contagious cases, and measles and scarlet fever patients were occasionally put into clean wards, tying up these wards for long periods of time with quarantine regulations. For this reason the contagious disease department took over the admission of all contagious cases.

TABLE 1.—AVERAGE WHITE COUNT ON ADMISSION

Diseases	Number of Cases	Average White Count
Measles	246	7,389
German measles	19	9,772
Mumps	488	9,415
Scarlet fever	91	18,926
Streptococcus sore throat	33	17,484
Whooping cough	3	20,433

All patients were stripped to the waist and examined. In the definite cases, patients were sent to the proper wards, and in doubtful cases to the observation wards. Difficulty soon developed in properly grouping the following types of cases: (1) infections in the incubation period of a second infection; (2) double infections, in which, for instance, a measles eruption masked a scarlet fever efflorescence; (3) cases that were apparently one infection but in reality were another. It was found that the leukocyte count taken after admission to the ward readily differentiated most of these cases.

The suggestion was therefore made that the white blood count for the differentiation between these diseases be made in the receiving office. In this way a large majority of these patients could be sent directly to the proper ward without an intermediate delay of a day or two in the observation wards. With this idea in mind a unit laboratory was placed in the receiving office, and a leukocyte count was made in all doubtful cases. A larger number of cases proved to be doubtful than was at first apparent, so that it became expedient to make counts in all cases. Before this procedure was instituted, the error made in making the immediate diagnosis was about 5 per cent. of all cases; the white count reduced this error to

TABLE 2.—WORK DONE BY THE RECEIVING OFFICE UNIT LABORATORY AT CAMP GRANT, 1918

	Week Ending																														
	January				February				March					April				May				June					July				
	6	13	20	27	3	10	17	24	3	10	17	24	31	7	14	21	28	5	12	19	26	2	9	16	23	30	7	14	21	28
Blood counts:																															
White	45	88	159	86	127	115	126	93	116	154	169	134	127	145	112	123	130	146	123	67	51	63	50	37	43	71	48	55	59	56
Red	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Differential	7	20	12	12	2	12	21	11	34	27	17	28	9	12	9	14	21	43	36	2	1	2	3	1	1	..	6	..	1	..
Urinalysis	50	67	46	46	34	27	43	28	24	48	37	23	40	80	36	33	59	35	25	..	..	3	..	..	..	6	..	4	4	1
Throat smears	6	3	18	10	23	30	47	13	28	25	36	31	18	18	18	19	15	14	4	7	5	..	..	..	..	6	2	..	8	3
Throat cultures	..	..	..	7	27	31	41	26	45	46	37	37	43	70	55	27	68	75	96	14	36	12	17	7	126	10	33	13	9	8
Urethral smears	2	..	..	1	..	..	2	..	..	..	..	..	2	2	1															
Spinal fluids	..	..	..	6	15	6	2	2	..	6	10	13	11	3	2	..	2	2	1	2	3	2								
Sputum	1	1	4	..	..	..	1	..	..	..	2	1	2	10	4	..	1	3	..	..	..	..	..	..	1					
Feces	..	..	..	..	..	..	..	3	3	..	1	2	..	..	..	1	2	4	3											
Schick test	..	..	..	..	..	..	..	..	..	..	12	4	1	2	3	..	..	21	14	34	6	15								
Wassermann tests	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	126	227	217	253	372	314
Hemolytic streptococcus cultures	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	47					
Men at work	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2

approximately 1 per cent. It also increased the number of cases in which an immediate diagnosis could be made. This cut down the number of patients that it was necessary to send to the observation wards.

In the laboratory of the receiving office, cultures and cover glass smears are made from all sore throats to determine the presence of the diphtheria bacilli. In all cases of sore throat with exudates that show organisms resembling the diphtheria bacilli in the smears, the patients are immediately given antitoxin. The administration of antitoxin in other cases can usually await the examination of cultures. Because of the known susceptibility of scarlet fever patients to diphtheria, it is important that no throats harboring the diphtheria bacilli should be allowed to remain in the scarlet fever ward; and to avoid such cross-infection, in all scarlet fever cases smears are taken and cultures made in the receiving office. A Schick test should be made in all cases of sore throat, and it is often a valuable aid in differentiating between a true diphtheria and a diphtheria carrier. This is especially true when a streptococcus exudate clouds the picture.

This laboratory has also proved to be a convenient place for obtaining the blood for routine Wassermann tests, and recently has been of value in obtaining a series of throat cultures to determine the frequency of the hemolytic streptococcus.

Table 1 shows the average white counts in the various diseases on admission. It contains both uncomplicated and complicated cases with the exception that unquestionable cases of double infection were omitted. Many cases of measles and some cases of mumps were complicated by the hemolytic streptococcus, which elevated the white count. Therefore these diseases will show a higher average than a series of uncomplicated cases. The table is considered of value, however, because it shows the figures the receiving officer actually has to consider in making his disposition of cases.

Out of 476 cases of measles, 66 per cent. showed Koplik's spots on admission, which was usually on the first day of eruption.

These examinations led to the following general conclusions:

Measles patients with counts of more than 10,000 and mumps patients with counts over 12,000 had a complication that demanded a careful diagnosis before they were sent to the wards. In a small series of nineteen cases, German measles averaged a higher count than true measles. Many mumps patients have a leukopenia of from 5,000 to 7,000. An orchitis elevates the white count in this disease by an increase of the mononuclear cells. There was little difference in the white counts in streptococcus sore throat and scarlet fever, although scarlet fever averaged slightly higher.

It might be objected that these laboratory tests would undesirably lengthen the process of getting the patient to bed. Practically this did not occur. If it did occur, it could easily be remedied by putting more workers in the laboratory. Installation of small cubicles will maintain the technic of the masking system, while the patient is unmasked for throat cultures, etc. These cubicles should be made of wood and sheet metal and covered with white enameled paint, so that they can be frequently disinfected with soap and water.

Table 2 shows the amount of work done by this unit laboratory at Camp Grant.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

CHLORCOSANE.—A liquid, chlorinated paraffin containing its chlorine in stable (non-active) combination.

Actions, Uses, Dosage, Physical and Chemical Properties.—See THE JOURNAL, Feb. 16, 1918, p. 459.

Chlorcosane-Squibb.—A brand of chlorcosane.

Manufactured by E. R. Squibb & Sons, New York. No U. S. patent or trademark.

THROMBOPLASTIN SOLUTION-ARMOUR.—An extract of cattle brain in physiological sodium chloride solution prepared according to the method of Hess. It complies with the description of Solution Brain Extract (New and Nonofficial Remedies, 1918, p. 138).

Action and Uses.—See general article, Fibrin Ferments and Thromboplastic Substances (Kephalin) (New and Nonofficial Remedies, 1918, p. 136).

Dosage.—See Solution Brain Extract (New and Nonofficial Remedies, 1918, p. 138). Thromboplastin solution-Armour is marketed in 25 Cc. vials which bear an expiration date, after which time the contents should not be used.

Manufactured by Armour & Co., Chicago. No U. S. patent or trademark.

One part thromboplastin solution-Armour will coagulate 100 parts of oxalated blood plasma in less than one minute when tested as follows:

To 0.5 Cc. thromboplastin solution-Armour is added 24.5 Cc. physiological sodium chloric solution and the mixture shaken until a uniform emulsion results. Of this suspension 5 Cc. is mixed in a graduated cylinder with an equal volume of blood serum. To this is added 10 Cc. of oxalated blood plasma (1 Gm. sodium oxalate in 100 Cc. of water, added to 900 Cc. of fresh blood) and mixed by inverting the cylinder twice. The mixture is rapidly transferred to a shallow dish; it should coagulate in less than one minute. For this test, all solutions must be made freshly and the temperature of the liquids maintained at 38 C.

DESICCATED CORPUS LUTEUM-ARMOUR (See N. N. R., 1918, p. 237).

The following dosage form has been accepted:

Corpus Luteum Capsules, 2 Grains.—Each capsule contains desiccated corpus luteum-Armour 2 grains.

SALIPYRINE (See N. N. R., 1918, p. 275).

The following dosage form has been accepted:

Salipyrine Tablets, 7½ Grains.—Each tablet contains salipyrine 7½ grains.

ANTIPNEUMOCOCCUS SERUM (See THE JOURNAL, June 1, 1918, p. 1599).

The Gilliland Laboratories, Ambler, Pa.

Antipneumococcic Serum, Type I.—Marketed in vials containing 50 c.c.

PHENYLCINCHONINIC ACID, U. S. P. (See N. N. R., 1918, p. 269).

Phenylcinchoninic Acid-Abbott.—A brand of phenylcinchoninic acid, U. S. P.

Manufactured by the Abbott Laboratories, Chicago, under U. S. patent No. 1,075,171 (Oct. 7, 1914; expires 1930) by license of the U. S. Federal Trade Commission.

PARRESINE (See N. N. R., 1918, p. 247).

The following dosage form has been accepted:

Parresined Lace-Mesh Surgical Dressing.—Net mesh gauze impregnated with and containing from 45 to 50 per cent. of parresine.

HALAZONE (See N. N. R., 1918, p. 159).

Halazone-Squibb.—A brand of halazone. Sold only in the form of tablets (see below).

Halazone-Squibb Tablets, 1/16 Grain.—Each tablet contains halazone-Squibb 1/16 gr., anhydrous sodium carbonate 1/16 grain and sodium chloride 1⅞ grains.

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SATURDAY, SEPTEMBER 28, 1918

THE DAILY PRESS AND THE "FUTILITIES OF CONTEMPORARY SCIENCE"

The American public has so long been accustomed to accept the daily press as its mentor in all things which concern human welfare that the pronouncements of its printed columns are sometimes given an undeserved consideration. However sound and enlightening the almost infinite variety of items published in the newspapers may be as a rule, however convincing and worthy the editorial notices may appear when they analyze the current problems of politics, economics, finance or literature, it not infrequently happens that the reputation of science suffers. Our great metropolitan dailies attempt to secure experts in the domain of so-called "humanistic" studies to guide them in public expression of policies or achievements. All too often science is treated as something apart from the worthier interests of the thinking public; and as a consequence the presentation of scientific achievement often occurs in a crude way that makes errors of statement glaring to the intelligent, or else degrades reports of scientific progress by the employment of ignorant facetiousness.

An illustration of the editorial preaching of reckless misinformation regarding the development of typhoid germs in horses and the consequent alleged danger of eating horse meat—a statement emanating from Hearst papers under the editorship of Arthur Brisbane—was referred to recently in THE JOURNAL.[1] Under the caption "Futilities of Contemporary Science," a newspaper of no less dignity than the New York *Times*[2] attempts to exploit in semijocular vein the press dispatches regarding investigations of Hindhede of Copenhagen on restricted diets. This student of nutrition, who has long advocated economy in diet and particularly in the use of animal protein, has lately shown that adults could live without apparent detriment for a period of more than one and one-half years on a ration of bread, potato, vegetables and fruits without added fats. Such experiments, among many others that might be cited, help to rob the vision of meatless days and beefless weeks of the terror which it inspires in the breasts of the uninitiated. Man's health and strength are not dependent on the assumed superior virtues of animal flesh as a dietary constituent.

Every physician with scientific training is aware of the uncertainty existing with respect to the precise rôle of fat in the economy. Aside from the fact that fats yield more than twice as much energy per unit of substance as other foodstuffs, the demonstration that animal fats often act as carriers of vitamins essential to physiologic welfare has begun to raise new questions as to the indispensability of this group of nutrients. In the current discussions of war edema, the xerophthalmia of babies fed on fat-free milk and cereals, and other diseases of dietary deficiency origin, the possible need of fats as such or what they may include has become prominent.[3] It has been repeatedly reported by competent observers that the low fat ration in Germany, at least in the earlier period of the war, was regarded as one of the most severe deprivations of the population.

Surely, then, reputable investigations of nutrition successfully accomplished in spite of a dearth of fats are likely to command attention in the scientific world. The presumable potency of potato protein, the possible occurrence of adequate vitamins in the green vegetables —these and other timely topics are involved in Hindhede's announcement in his Danish report, of which a brief summary has been transmitted by cable. Yet the New York *Times*, evidently ignorant of the real significance of its "news," indulges in the following supposedly humorous animadversion:

> How painful, then, it is to read that a distinguished Scandinavian, Dr. Hindhede, has established the fact that man can get fat without eating fats! Those misguided individuals who want to know how to get fat are few, and material for the gratification of their strange desire is ready to the hand of most of them. That men could continue to live, work, think, and maintain at least a minimum of health with very little fat in their diet was already established, for in vast regions of half-fed Europe they have been doing that for months and years past; no Scandinavian researches were needed to establish that.
>
> If Dr. Hindhede and his colleagues among neutral scientists wish to devise something that will bring real solace to the world after the war is over, let them devise some diet on which anybody can get thin. The mere verification of suspicion that whatever you eat or do not eat you will still have to let out your belt, may prevent some needlessly painful dietetic penances, but it does nothing to alleviate the agonies of the adipose.

Where ignorance is bliss 'tis folly to be wise. But it is worse than folly to allow ignorance to concoct belittling facetiousness at the expense of the efforts of modern science—particularly in a day when science admittedly needs to be encouraged to its utmost.

1. The Intermediate Host of the Typhoid Bacillus, Current Comment, THE JOURNAL A. M. A., July 27, 1918, p. 284.
2. Futilities of Contemporary Science, Editorial, New York Times, July 29, 1918.
3. Steenbock, H.: Vitamins and Nutrition, The Scientific Monthly, August, 1918, 7, 179.

ARE ANTITOXINS PROTEIN IN NATURE?

Ehrlich's hypothesis that an antitoxin consists of "cell receptors" that have been produced in excess and secreted by body cells into the blood has doubtless been a helpful conception stimulating pathologists or immunologists—as the specialists are now designated—in the investigation of immune serums. To the chemically trained mind, however, it falls far short of suggesting something definite or tangible and in any way comparable with the more familiar compounds that are known to play some part in biologic processes. The fact that the neutralization or detoxication of toxin with antitoxin can be carried out quantitatively in a beaker as well as in the body is an indication that specific substances are involved in such reactions. According to Arrhenius, the interaction of toxin and antitoxin is accompanied by a liberation of heat much as is the action between strong acids and bases.[1] The concurrence of opinion further opposes the idea that antitoxins are in the nature of chemical ferments or enzymes.

Although the actual chemical nature of antitoxins is unknown, the antitoxic properties of such immune serums as are employed in combating diphtheria are closely associated with the globulin fraction obtainable from this part of the blood by current methods of protein separation and purification. There is some evidence, derived from data regarding their comparative diffusibility, to indicate that antitoxin molecules are much larger than the toxin molecule;[2] and this fact, along with the deportment of antitoxin in the attempts to concentrate it from serums, is often adduced in favor of its protein nature. Although it is possible to retain all of the immunity units along with only a part of the protein, no one has succeeded in separating the antitoxins from their associated proteins.

At the Bureau of Animal Industry in Washington, Berg and Kelser[3] have attempted anew to secure a protein-free antitoxin preparation on the one hand, and on the other to determine whether antitoxin can be destroyed by procedures that leave the protein intact. Success in either direction would indicate that antitoxin may be of nonprotein nature. According to the method proposed by the government pathologic chemists, if an antitoxin—tetanus antitoxin, for example—is a substance of nonprotein nature, it should be possible to prepare artificial digestion mixtures containing the antitoxin serum or antitoxin derived therefrom, in such fashion that the protein would undergo digestion without loss of antitoxin. Appropriate chemical measurements would indicate the extent of proteolysis, while inoculation experiments on guinea-pigs would indicate whether there was any loss of antitoxic units. If, on the other hand, the antitoxin is a protein and its power to neutralize immunologically the corresponding toxin is a function of the intact protein molecule, then the antitoxin would be destroyed in every case in which the protein had undergone cleavage, regardless of whether the cleavage was caused by a proteolytic enzyme or other chemical agent. Due regard must of course be had for the possible destruction of the toxin by the chemical agents used in the experiments.

The outcome of the experiments of Berg and Kelser has been to indicate that antitoxin destruction may take place with or without cleavage of protein. Dilute acid or alkali may destroy the antitoxin within a period in which significant chemical changes in the accompanying protein cannot be detected by the tests adopted. The authors interpret their results as indicating that tetanus antitoxin is a substance of nonprotein nature. But, they add, the stability of the antitoxin is so dependent on that of the protein to which it is attached that whenever the protein molecule is split, the antitoxin splits with it. It would be folly, however, to regard these demonstrations as conclusive so long as a protein-free antitoxin is not obtained. Proteins are susceptible to molecular rearrangement by the action of an alkali, for example, without having their gross composition altered thereby. The antigenic properties of proteins can be entirely altered in this way, as Ten Broeck[4] found in the case of the racemized protein of Dakin, which still seems to possess all of the amino-acids present in the original active substance.

1. Arrhenius, S. A.: Quantitative Laws in Biological Chemistry, 1915.
2. The literature on this topic is reviewed by Wells, H. G.: Chemical Pathology, Ed. 3, Philadelphia, 1918, p. 180.
3. Berg, W. N., and Kelser, R. A.: The Destruction of Tetanus Antitoxin by Chemical Agents. Proc. Nat. Acad. Sc., 1918, 4, 174.

THE UROBILIN PROBLEM

It is nearly half a century since urobilin was described by Jaffe. Little attention was paid to this substance from a clinical standpoint until its relation to the decomposition of bile pigment by bacterial action in the alimentary canal was made prominent by Friedrich Müller. The terms "urobilin" and "urobilinogen" are applied to a group of derivatives of bile or blood pigment for which methods of estimation, crude though they may appear to careful analysts, have been devised and widely applied to the examination of urine and feces by a considerable number of clinicians and in a great diversity of cases. Like many novelties in clinical chemistry—we may cite the indican test and Ehrlich's diazoreaction—the test for urobilin has attained a considerable popularity and has been the subject of generalizations that might appear highly significant and diagnostic to the uncritical reviewer. It seems worth while, therefore, to point out at this time that there are unquestionably obstacles to the ready acceptance of some of the current hypotheses.

4. Ten Broeck: Jour. Biol. Chem., 1914, 17, 369.

The recent theory that is perhaps the most prominent has been thus summarized by Robertson:[1] Urobilin is a decomposition product of bile, formed chiefly in the intestine by the action of putrefactive bacteria on the bile pigments. The quantity of urobilin in the feces does not represent the total amount of bile excreted into the intestine, for part of the urobilin is reabsorbed in the form of urobilinogen. Yet there seems to be a fairly constant relationship between the two, and the urobilin output may be taken as a rough measure of bile excretion. Since the amount of bile formed is, with a normal liver, directly dependent on the quantity of blood pigment brought to it, the variations in urobilin excretion may therefore be considered to indicate corresponding fluctuations in the amount of blood being destroyed. Robertson observed, in his clinical studies at the Massachusetts General Hospital, that those patients in whom the evidence of blood destruction was most marked gave the highest urobilin estimations. There was no case with a normal urobilin output which showed any evidence of abnormal hemolytic activity. Accordingly it seemed fair to conclude, first, that the quantity of urobilin in the stool may be taken as an approximate measure of the degree of hemolysis occurring in the body; and secondly, that such estimation is of very definite clinical value in the diagnosis of conditions questionably hemolytic in character, particularly in anemias that are of uncertain type.

These conclusions were in harmony with the views of Wilbur and Addis[2] of Leland Stanford Junior University, who have devoted much attention to the clinical significance of urobilin. They even state that by means of urobilin estimations in the stools, those forms of anemia associated with an increased blood destruction may be differentiated. They intimate that it is probably in this field that the most valuable diagnostic results will be obtained; and they point out the striking contrast which was found between the very large total urobilin elimination in pernicious anemia as compared with the small amount observed in secondary anemias following hemorrhage or carcinoma.

At the Mayo Clinic, Giffin, Sanford and Szlapka[3] have altered the technic by making observations on contents of the duodenum collected by means of an Einhorn tube rather than on stool extracts. As a result they report low values in secondary anemias, but high figures in cases of hemolytic jaundice and of pernicious anemia—the classic instances. The Rochester clinicians do not attempt any far reaching deductions, however, as to the interpretation of their findings.

What is to become of the enterogenous hypothesis of urobilin formation in the light of such clinical observations? Must it be abandoned? There is evidence that the urobilin substances may make their appearance in the urine independently of any presumable putrefactive origin in the bowel. Shall we then relate urobilin to some antecedent reaction associated with bile pigment formation, for example, to the failure of a proper bile pigment synthesis or to a disintegration of bilirubin in the liver or elsewhere? In this event it becomes necessary—if the original contentions of an interrelation between blood pigment destruction and urobilin formations are maintained—to postulate a direct relationship between hemoglobin and bile pigments. Such a hypothesis has found a serious obstacle in the researches of Whipple and Hooper[4] of the Hooper Foundation at the University of California. Their conclusions, termed "iconoclastic" by one recent writer[3] on urobilin, indicate that bile pigment production is influenced by dietary factors quite as well as by the blood factors. Thus, although the introduction of free hemoglobin into the circulation may be followed by an increased output of bile pigment, this is not an invariable and uniform response. In other words, the disintegration of blood pigment may not be the decisive factor in the production of bile pigments or their derivatives. It may turn out that urobilin is the expression of some impaired organ function as well as of blood destruction. Amid the uncertainty and confusion that have arisen, the clinician may well hesitate to take a decisive attitude toward the pigment problems.

1. Robertson, O. H.: Urobilin in the Stool—An Index to Blood Destruction, Arch. Int. Med., June, 1915, p. 1072.
2. Wilbur, R. L., and Addis, Thomas: Urobilin: Its Clinical Significance, Arch. Int. Med., February, 1914, p. 235. Addis, Thomas: A Working Hypothesis of Hemoglobin Pigment Metabolism, ibid., March, 1915, p. 413.
3. Giffin, H. Z.; Sanford, A. H., and Szlapka, T. L.: The Estimation of Urobilin and Urobilinogen in the Duodenal Contents, Am. Jour. Med. Sc., 1918, **155**, 562.
4. Hooper, C. W., and Whipple, G. H.: Bile Pigment Metabolism, I, Bile Pigment Output and Diet Studies, Am. Jour. Physiol., 1916, **40**, 332. Whipple, G. H., and Hooper, C. W.: Bile Pigment Metabolism. II, Bile Pigment Output Influenced by Diet, ibid., p. 349; III, Bile Pigment Output and Blood Feeding, ibid., 1917, **42**, 256. Hooper, C. W., and Whipple, G. H.: Bile Pigment Metabolism, IV, Influence of Fresh Bile Feeding upon Whole Bile and Bile Pigment Secretion, ibid., p. 264. Whipple, G. H., and Hooper, C. W.: Bile Pigment Metabolism, VI, Bile Pigment Output Influenced by the Eck Fistula, ibid., p. 544.

SEED OILS AS NUTRIENTS

When we were warned, early in the war, that an impending shortage of fats—a deficit due to lack of tonnage and the extensive use of fats in the manufacture of munitions, as well as to decreased animal production—called for intelligent conservation of these foodstuffs, there was some uneasiness as to the outcome. It had early been heard as a prominent complaint against war time diets in Germany, in which the fats were said to be very low, that they do not "stay by" and consequently they put the consumer in the position of a dietetically unsatisfied individual. With a possible decrease in the procurability of butter, lard, suet and tallow impending, the vision of a perennially hungry public began to worry the food experts. But necessity is the mother of invention; consequently

new sources of fats have come to notice and hitherto little used fats have gained a novel prominence. There are many wholesome and relatively inexpensive vegetable oils on the market which might be used more freely than they now are. Moreover, the U. S. Food Administration[1] assures us that the production of vegetable oils can be more easily and quickly increased in an emergency than the production of the animal fats.

The physiologist insists on something more than attractive appearance and palatability as a guarantee of nutrient virtues in newly proposed foods. He insists nowadays on the rigorous test of digestibility, etc., which can be furnished only by actual feeding experiments. Hence the government, through the agency of its Office of Home Economics, has sought information of this sort regarding the edible fats. In addition to the edible animal fats, all of which are proverbially digested well when eaten in amounts not in excess of those consumed in the ordinary dietary, some of the better known vegetable fats, including olive, cottonseed, coconut, peanut and sesame oils, as well as those expressed from common nuts, have passed the test.[2] The latest contribution[3] to the possibilities of fat for food vouches for the excellent utilization of corn oil, a refined by-product of the manufacture of corn starch, which has been used quite extensively in the preparation of lard substitutes and is now becoming quite a common household product; soy bean oil, long a fuel in the Orient and now giving promise of possible usefulness as a food; sunflower seed oil, which the American Indians were wont to use for food purposes and which the human subjects in the government tests consumed in excess of 90 gm. daily without objection; Japanese mustard-seed oil, a by-product of the manufacture of mustard for condimental purposes; rape-seed oil, already familiar to inhabitants of Europe and India; and even charlock oil, the product of a weed seed (wild mustard).

If we can accept substitutive cereals, why not substitutive fats? It must not be overlooked, of course, that some animal fats, notably milk fats, contain little known but very important substances — vitamins — without which the body cannot grow or recover from injury as it should. As these are not found in all vegetable oils, we must not fail to provide children and invalids with some animal fats, preferably perhaps from milk. The fact that some fats are solid and some oily does not affect their comparative wholesomeness. It merely gives us the problem of using them in new ways when once their physiologic availability has been suitably guaranteed.

1. The Day's Food in War and Peace, published by the U. S. Food Administration, Washington, 1918, p. 44.
2. Bull. 310, U. S. Dept. Agr., 1915; 507, 1917; 505, 1917; 630, 1918.
3. Holmes, A. D.: Digestibility of Some Seed Oils, Bull. 687, U. S. Dept. Agr., 1918.

Current Comment

OUR ANIMAL HERDS

The drought of this summer in parts of the Allied countries and in our own Southwest and in some Western states forces on the world's attention the great dependence of the human race on its animal herds. The war has led to such depletion in the animal stocks of European countries that they can be saved only from the outside and are looking particularly to us for help. We should remember that the little cans of condensed milk have become almost sacred symbols of our aid to hundreds of thousands of Belgian and French mothers. Since under war conditions the maternal nursing period is only from six weeks to three months, the continued development of all the peoples directly hit by the war depends on their dairy herds—now sadly depleted by slaughtering for food and by German thieving. The embargo on feed grains to neutral countries, such as Holland, has forced the slaughtering of hundreds of thousands of cows. It takes at least three years for any considerable herd increase in milch animals, so at the best the problem will be a most serious one. A scarcity of the world's food supply for the coming year brings out an interesting contrast to that of the years 1917-1918, since now the Allied countries' shortage, as well as our own, is in fodder and feed grains rather than in bread grains. The effect of this on our own country is hard to foresee.

THE EPIDEMIC OF INFLUENZA

The epidemic of influenza now sweeping over the country—a part of the pandemic now covering the world — reported in this country first from seaports and naval stations, and later from many cities, including at least twenty-five Army camps, with the craze for weird nomenclature accompanying war conditions, has been labeled "Spanish influenza." This, however, should not cause any greater importance to be attached to it, nor arouse any greater fear, than would influenza without the new name. This epidemic is of course modified as to its epidemiology by the fact that large numbers of the most healthful portion of our population have been segregated in military and naval camps. The condition presumably started in Spain and spread throughout the various armies. It has already practically disappeared from the Allied troops. A typical epidemic as it existed abroad is described in the paper by Hewlett and Alberty in this issue of THE JOURNAL; a typical epidemic at a naval station is described also in this issue by Lieutenant Keegan. It is needless and too early to discuss here the exact identity of the infectious agent. Few physicians will attempt to treat the condition with any special reference to its bacteriologic cause. The course of the disease is similar to the condition which has always been called influenza, except that it seems in some cases more severe, that it shows an extraordinary degree of contagiousness and that it is complicated or followed, in perhaps as many as 5 per cent. of cases,

by a massive and rather fatal bronchopneumonia. In its great prevalence it recalls the epizootic of earlier years. In the epidemic at Chelsea, Mass., this pneumonia was found to be caused by the influenza bacillus, which was recovered from 82.6 per cent. of the lungs at necropsy, and in 31.6 in pure culture, frequently mixed, however, with pneumococcus or streptococcus infections. This pneumonia was fatal in 33⅓ per cent. of the persons attacked by it. Early reports of the epidemic at the Great Lakes Naval Training Station indicate a similar incidence of pneumonia and mortality. Medical authorities of the Army, the Navy and the Public Health Service are thoroughly alive to the condition, and are taking active measures to control it. These measures are based on our knowledge that the disease is transmitted from person to person by direct contact, or indirect contact through droplet infection, and that it is therefore to be controlled by isolation and prevention of the transmission of these discharges. Because of the tendency to the development of the secondary bronchopneumonia, patients should be treated in well-ventilated, warm rooms with special consideration for the possibility of this serious complication.

"UNCLE SAM, M.D."

Under this title Samuel Hopkins Adams writes in *Collier's* for September 21. It is an article that every physician should read. Mr. Adams says: "The vast and complex job of making over our peace doctors into war doctors is the nearest thing to 100 per cent. achievement that the government has yet performed in this war"; and his article tells the story of this job and the way it is being done. Mr. Adams is not writing from hearsay; he went to one of the medical officers' training camps, and in order to go through the routine, as he puts it, "became part and parcel of a decidedly active, not to say overcrowded life." The company to which he was assigned was the "crack company of the best battalion"; the company said so! Mr. Adams thus sums up his impressions of the camp: "If I had to select the one quality which chiefly characterizes doc in uniform, I think I should name gameness. Fuse with his determination and enthusiasm a certain healthy humility, born of the necessity of learning things from the bottom up, a prevailing readiness to help the man a little newer than oneself, and a complete sense of democracy, and you get an esprit de corps such as one would not believe possible in an organization so new and so constantly renewing."

THE MILK PROBLEM

The most insoluble of all food problems are those associated with dairying. Local conditions are widely at variance as to the expense of production and the increase in milk production. Advances in the price of milk strike at our children's welfare and encounter greater opposition than advances in the price of any other commodity. The successful efforts of health officers and of physicians to improve the quality and increase the safety of milk have necessarily raised the cost. Dependable milk and butter are absolutely vital to child welfare. With the short supply of fodder in many places, the cutting off of brewers' grains, the shortage of labor and the many difficulties surrounding milk distribution, public interest in maintaining the dairy herds must be kept up. Only by so doing can we care for the present emergency and keep intact the large herd needed for the replenishment of Europe. The medical profession has for years been in the forefront in the protection of the public on the milk question, and its influence must be felt even more now in every community, in order that we may be able to have a wide margin of safety in the size of our animal herd. A sympathetic survey of the question with wide dissemination of the facts so obtained would be a worthy service that far-seeing citizens can render in every community.

ADVERTISING

This, from the opening paragraph of a heart-to-heart letter of Swoboda—the gentleman who will "guarantee to give you perpetual youth"—to a prospective sucker:

> You would never forgive me, and I could never forgive myself, nor could the creative forces of the Universe forgive us, if I failed to bring you to the point of evolutionizing, consciously, progressively, and intensively.

As an advertising blurb, this ranks high. Although possibly the fourth paragraph from the same letter is almost as good:

> Through Conscious Evolution, I convert weakness into strength, illness into health, fear into confidence, timidity into courage, worry into optimism, a negative personality into a positive personality, and old age into youth.

And the production of super-men no longer is to be confined to the Central Empires, for:

> Conscious Evolution has made possible for everyone the possession of super-health, super-vitality, super-courage, super-aggressiveness, super-mental power, and super every power.

And this is the sort of stuff which staid and respectable publications are willing to advertise, and even, if necessary, editorially defend. Evolution, we are told, has taken a million years to make a man out of a monkey; modern advertising reverses the process in a day.

Dental Dressers.—To provide for continued and systematic dental attention to schoolchildren without prohibitory expense to the rate payers, officials in the Derbyshire district of England, according to the *Medical Officer*, Aug. 10, 1918, at the suggestion of the dental officer of the schools, put into practice the training of dental dressers, young women, who, after six months or a year of training were found competent as dental hygienists and were able to detect irregularities of the teeth, detect caries by probe and mirror, chart defects correctly, do simple dressings, select septic temporary teeth for extraction, scale well, drill and excavate caries and make fillings where the pulp cavity was not reached, and extract temporary teeth. The 80,000 schoolchildren of the district would have necessitated the employment of ten full time dentists at an expense of 10,000 pounds, while by the expedient of employing dental dressers the number of full time dentists was reduced to three, each having under him three trained dental dressers at a total expense of 3,000 pounds.

Medical Mobilization and the War

Rank of Medical Aides to Governors

As a recognition of the importance of their work, medical aides to governors have been given the rank of captain in all states having a population of less than a million and a half, and of major in states having a larger population than a million and a half.

Red Cross Offers Mourning Emblems

The War Council of the American Red Cross announces that that organization will provide mourning brassards free to the parents or widows of men who have died in the service, and will furnish the same at cost to other members of the family. The brassard is to be worn on the left sleeve, midway between the elbow and shoulder, is a band of black broadcloth or other material, 3 inches wide, on the surface of which the regulation military star is embroidered in gold thread.

Military Pathologic Museum

Major C. J. Herrick, M. C., has been detailed to the Army Medical Museum for the duty of receiving and disposing of pathologic specimens forwarded to the museum from military centers at home and abroad. Interesting specimens from civil life will be received also. Major Herrick will see to the preparation and preservation of these specimens and will determine what disposition will be made of them; some will be kept as permanent exhibits for the museum; others will be distributed for instruction purposes; and others, including duplicates, will no doubt be sent to swell similar collections elsewhere.

Medical Students and the Draft

The Provost Marshal-General has addressed the following telegram to the draft executives of all states:

"It has been brought to the attention of this office that many Local Boards are calling registrants for induction who had enlisted in the Enlisted Reserve Corps of the Medical Department under Section 151, Old Regulations, on mistaken assumption that under telegram Number B 2546 such enlistment held the registrant in Class V only until September 16.

"Registrants who enlisted in the Enlisted Reserve Corps of the Medical Department as aforesaid should be held in Class V and should not be confounded with registrants who enlisted for special training in camps and schools for a limited period expiring September 16, referred to in Telegram B 2546. Please communicate contents of this telegram to all Local Boards.

CROWDER."

Red Cross Mission to Italy

The Italian Tuberculosis Unit of the American Red Cross, under the supervision of Col. Robert Perkins, Red Cross commissioner of Italy, will sail in a short time to conduct a health campaign with the particular objective of stamping out tuberculosis. The director of the unit is Dr. William Charles White of Pittsburgh, and associated with him are Dr. John H. Lowman, Cleveland, chief of the medical division; Louis I. Dublin, New York City, chief of the division of medical statistics; Dr. Richard A. Bolt, Cleveland, of the child welfare division; Dr. Erwin A. Peterson, Cleveland, chief of the division of medical inspection of public schools; Dr. Robert G. Paterson, Columbus, Ohio, chief of the division of education and organization; Miss Mary S. Gardner, chief of the division of public health nursing, and Lewis D. Dement, Framingham, Mass., executive manager.

Medical History of the War

Further steps toward writing the medical history of this war are being taken by the training of men to illustrate pictorially the medical and surgical pathology which will come under observation in the camps and hospitals both at home and overseas. A section of a dozen or more enlisted men under the command of a commissioned officer are on duty at the Army Medical Museum for special training in this branch of art. Among other features of the training is a thorough course in anatomy. Dr. D. S. Lamb, the veteran anatomist of the museum, has been engaged in teaching these men by didactic lectures and by demonstration of the wealth of material in the museum. Dr. W. F. R. Phillips, dean and professor of anatomy of the Medical College of South Carolina, has about completed a course in practical anatomy, guiding the men through the complete dissection of cadavers. Dr. Phillips is now about to leave for Charleston, S. C., to take up his duties at the medical school there.

Commissions Offered and Orders to Active Duty

Successful applicants for commission in the Medical Corps of the Army receive a letter from the Surgeon-General's Office informing them that they have been recommended for a commission; they are also notified that commissions are now awarded with orders to active duty immediately on acceptance. In due time—it may be a week, or three or four weeks—the applicant receives a telegram from the Adjutant-General's Office informing him that he has been awarded a commission; and ordering him to active duty at a definite post within ten days *after date of acceptance*. The acceptance is to be telegraphed to the Adjutant-General's Office and the action taken telegraphed to the Surgeon-General's Office. In some instances the brief time allotted works hardship on physicians whose affairs could not be adequately closed up in this time. It is advisable for the physician, on receipt of the letter from the Surgeon-General's Office, to begin to arrange his affairs, but not to close up anything finally. If, on receipt of the telegram from the Adjutant-General's Office, the officer finds that he requires more than the ten days of grace before departure, he should delay sending his telegram of acceptance to the Adjutant-General, but only so long as is absolutely necessary.

Information for Disqualified Draft Registrants

On the recommendation of the Surgeon-General of the Public Health Service, the Provost Marshal-General of the United States Army has arranged to distribute through the local draft boards, a circular of instructions prepared by the Public Health Service called "Information for Guidance and Assistance of Registrants Disqualified for Active Military Service Because of Physical Disabilities." In the instructions accompanying this document, the Surgeon-General points out that in the first draft about one third of the men examined were rejected for physical disability and there will doubtless be many among those examined in the new draft. The object of the circular is to give to the rejected men definite instructions as to the meaning of their disabilities and to appeal to them to correct the disability as far as possible. This will not only serve to reclaim many men for military service, but will lessen the burden of illness and disability among those engaged in essential industrial work. The circular contains specific information concerning the commoner causes of rejection or deferred classification such as defective eye sight, teeth, feet, underweight, overweight, hernia, etc. It is said that experience has shown that the proportion of persons with physical impairment is greater in persons between 30 and 40 than those between 20 and 30. This means, probably, that more disability will be found among those called by the new draft. Each registrant rejected will be given one of these circulars and in addition arrangements have been made by which specimens of the circular will be furnished to life insurance companies, fraternal organizations, labor unions, employers of labor and others who desire to reprint and make use of the circular. Requests for specimen copies should be made of the United States Public Health Service, Washington, D. C.

Promotions of Medical Officers Abroad

For some time considerable dissatisfaction existed among medical officers on duty in France because of the slowness of promotion, especially as compared with the rate of promotion of medical officers still in the United States. However, it has recently been announced that efforts are being made to accelerate promotion of reserve officers in France. July 29, recommendations were sent for the promotion of ninety-eight officers serving with the British Expeditionary Forces, and July 30, fifty-eight other officers were recommended for promotion. The *Stars and Stripes* for August 16 states that the policy governing the Medical Reserve Corps promotions recognizes that several factors should be considered in determining the rank of physicians coming into the Army in time of war: (1) age and length of professional experience; (2) length of active service, and (3) character of active service, taking into consideration whether or not it has been

distinguished by unusual self-denial, gallantry, efficiency or hardships. Commanding officers and senior medical officers have been requested to accumulate data for determining these factors in the case of medical officers in line for promotion. It is understood, however, that officers under 31 years of age are not to be promoted except in special cases in which they have rendered unusual distinguished service and have been more than a year on active duty. All officers of the Medical Corps in Europe are to be placed on a roster according to age in each grade. The officer's age is to be determined by taking his actual age and adding four months for each month of service; thus, all lieutenants whose actual age is above 31 and who have completed one year's service will be eligible for recommendation to be promoted to captain. Taking the number of first lieutenants as a basis, the number of officers in the grades of captain and major are to be one lieutenant to 3.9 captains, to 1.7 major. It is understood also that the present recommendations for promotions to majorities shall concern only officers above the age of 40, and for promotion to captaincies only those lieutenants above the age of 35, except in special instances.

CORRECTION

The "Honor Roll" published in THE JOURNAL of June 1, 1918, should have contained the name of Lieut. H. L. HOLZBERG, M. C., U. S. Navy, attached to the Naval Training Station, San Francisco.

COMMISSIONS ACCEPTED, MEDICAL CORPS, U. S. ARMY

Previous lists published in THE JOURNAL, June 1, 22, and 29, July 13, 20 and 27, August 3, 10, 24 and 31, September 7, 14 and 21.

ARKANSAS

McGehee—DeClark, W. H.

CALIFORNIA

Modesto—Clark, I. J.
San Francisco—Nolan, T. J.
O'Connor, J. H.
Stone, F. F.
Scotia—Cottrell, E. L.
Williams—Salter, N. H.

COLORADO

Keota—Wells, N. D.
Pueblo—Keeney, M. J.

CONNECTICUT

Hartford—Vernlund, C. F.

FLORIDA

Wauchula—Kayton, M. C.

GEORGIA

Asburn—McKenzie, G. C.
Atlanta—Childs, L. W.
Fayetteville—Malone, O. T.
Hoboken—Dorminy, A. C.
Lindale—Moore, C.
Morven—Meadows, C. B.
Ocilla—McElroy, S. L.
Plains—Wise, S. P.
Screven—Tyre, J. L.
Waycross—Oliver, J. A.

IDAHO

Eden—Scroggs, W. P.
Moscow—Dodd, J. A.
Payette—McDonald, J. L.

ILLINOIS

Chicago—Barth, J. J.
Donnelly, O. A. R.
Haidopoulos, C. G.
Hofman, H.
Jeffrey, C. W.
Levy, L.
Little, Z. J.
Mowry, A. E.
Smith, R. A.
Zuercher, J. C.
Elgin—West, H. H.
Forrest—Hamilton, O. P.
Sugar Grove—McNair, F. M.
Thomasboro—Kelso, C. E.

INDIANA

Anderson—Kimble, F. A.
Arcadia—Thayer, J. O.
Bristow—Coultas, P. J.
Dale—McClary, D. V.
Greenfield—Sisson, E. R.
Hammond—Mikesech, W. H.
Indianapolis—Hendricks, R. G.
Ottinger, R. C.
Lafayette—Hannell, R. V.
Logansport—Terflinger, F. W.
Mitchell—Gibbons, G. L.
New Palestine—Mace, E. E.
Quincy—McQueen, W.
Shelbyville—Sammons, L. C.

IOWA

Bedford—Sollis, D. B.
Boone—Healy, M. A.
Sheldon—Myers, J. W.
Spirit Lake—Geissinger, J. DeW.

KANSAS

Eudora—Robinson, W. H.
Madison—Haynes, E. E.
Mayfield—Clark, E. F.
Norton—Tinnin, R. M.
Osawatomie—Carmichael, F. A.
Salina—Brittain, O. R.
Topeka—O'Connell, J. H.

KENTUCKY

Ashland—Sturgell, G. M.
Covington—Menefee, B. K.
Irvington—Meador, R. W.
Lancaster—Edwards, J. E.
Louisville—McKenna, H.
Stroud, J. B.
Middletown—Wetherby, S. D.
Perryville—Hopper, W. O.

LOUISIANA

Shreveport—Hicks, O. B.
Smith, W. W.

MAINE

North Berwick—Brown, L. H.

MARYLAND

Baltimore—Perry, W. B.
Towson—Sargent, G. F.

MASSACHUSETTS

Brockton—Lawrence, J. H.
Miles, C. G.
Holyoke—Brady, W. F.
Tewksbury—Tuttle, H. K.

MICHIGAN

Custer—Duguid, L. H.
Detroit—Clark, R. L.
Clippert, J. C.
Luce, H. A.
Radzinski, A. J.
Hickory Corners — Singleton, W. A.
Ionia—McCann, J. J.
Negaunee—Larson, C. J.

MINNESOTA

Red Wing—Beyer, A. G.

MISSISSIPPI

Bassfield—Blount, E. N.
Crowder—Grice, E. A.
Leesburg—Davis, G. C.
Natchez—Smith, H. M.
Sherard—Rawles, E. L.
Tupelo—Tomer, W. A.

MISSOURI

Carthage—Bryan, H.
Cole Camp—Van Allen, J. P.
East Prairie—Finley, F. L.
Ewings—Cole, P. F.
Greensburg—Gibbs, C. A.
Hamilton—Daley, L. M.
Hurricane—Vaughn, S. C.
Kansas City—Albers, E. A.
Robinson, D. B.
Marshall—McLennan, T. A.
Purdy—Kelly, R. B.
Salisbury—Hawkins, G. W.
St. Louis—Homan, J. S.
Jeude, J. J.
Malone, J. T.
Thompson, D. A.
Windsor—Blackmore, T. A.

MONTANA

Butte—Bernheim, L.
Livingston—Vicars, F. O.
Stockett—Smith, W. R.

NEBRASKA

Columbus—Allenburger, C. A.
Harrison—Cramer, L. L.
Lincoln—Zeaner, S. G.

NEW HAMPSHIRE

Groveton—Hight, C. E.
North Walpole—Liston, A. C.

NEW JERSEY

Newark—Hewson, J. S.
Tidabuck, J. D.
Park Ridge—Garrett, H. S.
Perth Amboy—Fithian, G. W.
Union Hill—Curtis, G. P.

NEW YORK

Auburn—Seccomb, M. L.
Brooklyn—Kohlenberg, M.
Rauh, M. T.
Simrell, G. W.
Buffalo—Trudnowski, J. F.
Irondequoit—Bradstreet, S. W.
Mount Upton—Heimer, F. S.
New York—Hennesay, J. P.
Kahn, I. W.
Rambaud, G. G.
Yudkowsky, P.
Rochester—Toole, C. D.
Standish—O'Keefe, E. B.
Syracuse—Mellor, L. R.

NORTH CAROLINA

Plymouth—McGowan, C.

OHIO

Bedford—Ralston, J. H.
Cincinnati—Decourcy, J. F.
Cleveland—Cowles, E. C.
Hurt, J. A.
Lee, F. C.
Fresno—Kitsmiller, C. R.
Lancaster—Smith, R. H.
Martins Ferry—McGinnis, J. C.
Newark—Essington, U. K.
Newcomerstown—Berry, E. V.
Niles—Knox, J. D.
Selma—Nebb, E. C.
Tiffin—Hendershott, R. R.
Youngstown—Kofford, B. S.
Lautenschlager, T. H.

OKLAHOMA

Bartlesville—Kingman, W. H.
Delaware—Wilkinson, G. M.
Oklahoma City—Phelan, J. R.
Sulphur—Salter, J. M.
Watonga—Doty, H. W.
Welch—Bradshaw, J. O.

OREGON

Elkton—Francis, C. H.
Medford—Barber, M. C.
Westfall—Schenk, H. J.

PENNSYLVANIA

Altoona—Metzger, C. H.
Belleville—Farquhar, G. W.
Butler—McCandless, D. L.
Friedensburg—Stewart, H. H.
Glassport—Erhard, E. L.
Hillsville—McWilliams, W. M.
Nesquehoning—Shutack, J.
Philadelphia—Gorman, J. F.
McKee, J. H.
Shallow, T.
White, C. A.
Pittsburgh—Gardner, W. E.
McMaster, C. C.
Sherrill, A. W.
Portage—Yearick, G. I.
Roaring Spring—Grounds, W. L.
Shenandoah—Monahan, T. A.
St. Petersburg—Beals, C. W.
Swissvale—Morrow, H. W.
Tarentum—Orris, C. S.

SOUTH CAROLINA

Charleston—Bold, F. H.
Dean, H.

TENNESSEE

Bradford—Hudkins, I. N.
Clifton—Culp, E. M.
Hartsville—Blankenship, F. M.
Joelton—Miller, J. R.
Knoxville—Carmichael, C. J.
Newbern—Brewer, J. D.
St. Elmo—Davis, M. D.

TEXAS

Ambrose—Price, C. G.
Bellville—Neely, J. A.
Bonham—Nevill, O. C.
Como—Randolph, B.
Dalhart—Dawson, G. W.
Dallas—Donald, H.
Gilbert, T. C.
Irvine, E. J.
Pierce, F. A.
Fort Worth—Brannon, H. O.
Garner—Howard, C. C.
Holder—Holder, T. D.
Jonesboro—Moore, W. M.
Jourdanton—Moore, J. A.
Port Arthur—Reed, J. P.

UTAH

Ogden—Nixon, J. W.
Salt Lake City—Hatch, F. F.
McHugh, F. M.

VIRGINIA

Nathalie—Lacy, J. B.
Salem—Brown, W. R.

WASHINGTON

Tacoma—Pascoe, C. S.
Yakima—Carver, W. H.

WEST VIRGINIA

Bluefield—Kirk, J. B.
Charleston—Swint, B. H.
Morganstown—Fisher, R. W.
War—Peery, C. E.

WISCONSIN

Ladysmith—Stephenson, W. L.
Milwaukee—McNary, J. F.
McNaughton, W. T.
Weber, A. J.
Racine—Froney, M. A.
Soldier's Grove—Peterson, N. A.
Wausau—Schlegel, H. T.

WYOMING

Lusk—Dale, D. H.

COMMISSIONS ACCEPTED, U. S. NAVAL RESERVE FORCE

Previous lists published in THE JOURNAL, June 29, July 13, 20 and 27, August 3, 10 and 31, September 7 and 14.

ALABAMA

Montgomery—Blue, J. H.

CALIFORNIA

Lodi—Belinger, H. J.
Todd, E. B.

CONNECTICUT

Bridgeport—O'Brien, T. F.

DISTRICT OF COLUMBIA

Washington—Copeland, E. P.
Ferguson, C. E.
Lewis, H. S.
Sommer, H. O.
Walker, R. R.
White, C. S.

INDIANA

Indianapolis—Weil, H. J.

KENTUCKY

Cane City—Barbour, H. L.
Madisonville—Thompson, A. L.

LOUISIANA

Pineville—Quin, F. W.

MASSACHUSETTS

Boston—Brickley, W. J.
Cambridge—Peirce, B. H.
Gloucester—Shinn, P. A.
North Adams—Highley, C. J.

MISSISSIPPI

Norfield—Sartin, L. B.

MISSOURI

Kansas City—Lamar, F. C.
St. Louis—Bothman, L.

NEW JERSEY

Atlantic City—Charlton, C. C.
Bayonne—Klein, E.
Bloomfield—Moore, J. D.
Newark—Altman, C. D.

NEW YORK

Brooklyn—Harris L.
Meeks, F. R.
Zahler, I.
New York—Cowles, E. S.
Gatewood, W. L.
Lowsley, O. S.
MacDonald, J.
Mishkin, L. I.
Schulhofer, J.
Serotta, H. M.
Steinmetz, F. C.
Rochester—Edwards, H. W.
White Plains—Hammond, R. B.
Yonkers—Gaul, W. H.

NORTH CAROLINA

Middlesex—Lewis, S. V.

OHIO

Akron—Jones, J. L.
Columbus—Stanton, F. M.

OREGON

The Dalles—Nitschke, E. J.

PENNSYLVANIA

Bellevue—Gross, A. H.
Philadelphia—Delo, J. M.
Ewing, H. F.
Holmes, J. W.
Loftus, J. E.
Mann, B. H.
Norris, C. C.
Robelen, C. H. C.
Rosenthal, J. M.
Stull, H. T.
Thomas, B. A.
Treacy, A. J. M.
Turner, L.
Weinstein, M. A.
Welham, W. M. S.
Tamaqua—Hinkle, W. H.
Watsontown—Adams, F. R.

TEXAS

Galveston—Braun, I.
Whitewright—May, R. R.

VIRGINIA

Chatham—Bennett, C. D.

WISCONSIN

Milwaukee—Kettelhut, E. J.
Wauwatosa—Van de Erve, J.

COMMISSIONS OFFERED AND ORDERS TO DUTY ON ACCEPTANCE

Alabama

To Camp McClellan, Ala., Lieuts. J. M. SANKEY, Downs; J. A. SMITH, Melven.
To Fort Oglethorpe for instruction, Capt. D. G. CAMPBELL, Mobile; Lieut. S. R. BENEDICT, Birmingham.

Arizona

To Camp Fremont, Calif., Lieuts. H. A. HUGHES, Jr., Buckeye; E. J. GOTTHELF, Jr., Tucson.

California

To Camp Fremont, Calif., Lieuts H. H. MANN, Los Angeles; F. A. KINSLOW, San Francisco.
To Fort Oglethorpe for instruction, Capt. B. G. PINKERTON, Los Angeles; Lieut. W. B. HARDIE, Hume.
To Fort Riley for instruction, Capt. J. P. DOUGALL, Los Angeles; Lieuts. D. I. ALLER, Merced Falls; J. R. PERRY, Sherman.
To report to the commanding general, Hawaiian Department, Capts. A. FELLOWS, Los Angeles; K. B. SMITH, Oakland; Lieut. A. W. CONNER, San Jose.

Colorado

To Fort Riley for instruction, Lieut. W. R. TUBBS, Carbondale.

Connecticut

To Camp Sevier, S. C., Capt. W. F. GORDON, Danbury.
To Fort Oglethorpe for instruction, Capt. R. J. DWYER, Hartford; Lieut. H. E. STEWART, New Haven.

Delaware

To Accotink, Va., Lieut. S. M. ZION, Wilmington.

District of Columbia

To Camp Leach, D. C., Lieut. G. K. BAIER, Washington.
To Camp Meade, Md., base hospital, Capt. E. BARRY, Washington.
To Fort Oglethorpe for instruction, Lieuts. R. H. LEECE, J. W. ZIGMAND, Washington.
To Walter Reed General Hospital, D. C., Capt. S. KEY, Washington.

Florida

To Fort Oglethorpe for instruction, Lieut. P. P. PILLANS, Orlando.

Georgia

To Camp McClellan, Ala., Lieut. W. W. GRIFFITH, Bainbridge.
To Camp Sheridan, Ala., Lieut. C. S. LYNCH, Lumpkin.
To Fort Oglethorpe for instruction, Lieuts. P. M. LEWIS, Bainbridge; E. R. PARK, LaGrange; P. C. QUARTERMAN, Valdosta.

Idaho

To Camp Dodge, Iowa, Lieut. N. H. FARRELL, Mackay.
To Fort Riley for instruction, Lieut. J. C. PATTERSON, Burley.

Illinois

To Camp Custer, Mich., Capt. O. C. YODER, Peru; Lieuts. M. FINKEL, Blue Island; A. H. FINK, Chicago; A. W. CHRISTENSON, Rockford.
To Camp Dodge, Iowa, Capt. J. G. CARR, Chicago.
To Camp Grant, Ill., Capts. J. C. GRIFFITH, Bushnell; H. W. DUERINGER, Elgin; Lieuts. R. R. JAMIESON, Chicago; R. H. WOODS, LaSalle.
To Camp Lewis, Wash., base hospital, Capt. J. H. GREGORY, Milford.
To Camp Zachary Taylor, Ky., Lieuts. E. W. OLIVER, Chicago; J. L. ALLEN, Hobinson; A. B. CHILDS, Keithsburg.
To Fort Oglethorpe for instruction, Capts. J. E. WOELFLE, Cairo; E. F. DAUM, O. E. GRANT, C. H. SOLOMON, Chicago; W. E. POTTER, Oak Park; Lieuts. S. DAMIANI, B. P. DAVIS, J. D. ELLIS, D. KLEMPTNER, J. R. LAVIERI, M. P. SEIDNER, H. M. SONDEL, Chicago; J. H. CAMPBELL, Collison; J. J. WALSH, Elgin; C. S. GREGORY, Findlay; S. M. PITTMAN, Greenbush; J. F. NOLAN, Mattoon; K. W. WAHLBERG, Moline; P. H. ANTHONY, Morris; E. ZIMMERMAN, Quincy; T. THOMPSON, Shelbyville; H. H. FLETCHER, Winchester.
To Chillicothe, Ohio, to examine the command for nervous and mental diseases, Lieut. R. F. DOWELL, Elgin.
To Louisville, Ky., Lieuts. J. LEVETT, E. W. LYONS, Chicago; H. B. MARTIN, Grayville; F. P. COWDIN, Springfield.
To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. B. G. R. WILLIAMS, Paris.
To New York, Neurological Institute, for instruction, Capt. O. T. ROBERG, Chicago.

Indiana

To Camp Custer, Mich., Capt. C. A. UNDERWOOD, Indianapolis; Lieut. A. P. HAUSS, New Albany.
To Camp Zachary Taylor, Ky., Lieut. J. F. McCOOL, Indianapolis.
To Denver, Colo., Lieut W. A. GEKLER, Terre Haute.
To Fort Oglethorpe for instruction, Capts. D. M. REYNOLDS, Indianapolis; R. CLAPP, South Bend; W. N. THOMPSON, Sullivan; F. A. ZELLER, Union City; Lieuts. R. H. WAGONER, Colburn; W. R. HURST, Evansville; W. PALM, Harmony; F. R. MAXWELL, Martinsville; C. B. COMPTON, Michigantown; J. P. GIBSON, Owensville; H. C. MARTINDALE, Pendleton.

Iowa

To Camp Grant, Ill., Capts. J. M. WEISS, Knoxville; E. E. LUSK, Missouri Valley; J. F. COLE, Oelwein; Lieut. W. CORNS, Montour.
To Fort Des Moines, Iowa, base hospital, Major G. DONOHOE, Cherokee.
To Fort Oglethorpe for instruction, Capt. N. BOGGS, New London; Lieuts. H. J. HEUSINKVELD, Clinton; C. I. THOMAS, Guthrie Center.
To Fort Riley, Capt. W. RUML, Cedar Rapids. For instruction, Capt. G. M. MIDDLETON, Davenport; Lieut. J. O. WEAVER, Shenandoah.

Kansas

To Camp Grant, Ill., Lieut. L. M. BEATSON, Ashton.
To Camp MacArthur, Texas, Lieut. P. D. BROWN, Alton.
To Fort Riley, Lieuts. R. LAING, Concordia; R. B. EARP, Eldorado; H. R. WILSON, Harris; B. T. PRATHER, Peabody; H. A. WEST, Yates Center. For instruction, Lieuts. R. A. LIGHT, Chanute; W. L. SPEER, Clay Center.
To New Haven, Conn., Yale Army Laboratory School, Lieut. F. L. FLACK, Coffeyville.

Kentucky

To Camp Custer, Mich., Capts. H. R. NUSZ, Cecilia; S. P. OLDHAM, Owensboro.
To Camp Zachary Taylor, Ky., Lieut. H. J. BEARD, Livermore.
To Fort Oglethorpe for instruction, Capts. J. G. TALBOT, Burkesville; L. L. SMITH, Covington; L. KAHN, Louisville.
To Fort Wayne, Mich., Lieut. A. V. JONES, Louisville.
To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. W. H. ALLEN, Louisville.

Louisiana

To Camp Sheridan, Ala., Lieut. T. P. BELL, New Orleans.

Maine

To Camp Dix, N. J., Lieut. G. L. BURRITT, Harrington.
To Hoboken, N. J., Capt. F. E. CARMICHAEL, Portland; Lieut. G. E. DORE, Guilford.

Maryland

To Camp Upton, N. Y., Capt. L. M. C. PARKER, Baltimore.
To Fort Oglethorpe for instruction, Capt. M. S. ROSENTHAL, Lieuts. E. G. HALL, E. P. SMITH, Baltimore; H. W. KRANTZ, Union Bridge.
To New Haven, Conn., Lieut. W. A. BRIDGES, Towsen.
To Washington, D. C., Capt. J. L. ADAMS, Takoma Park.

Massachusetts

To Camp Dix, N. J., Capt. W. Y. FOX, Taunton; Lieut. R. B. RAND, North Abington.
To Camp Upton, N. Y., Lieuts. A. R. FRIED, Newton; E. H. JUDD, Springfield.
To Fort Oglethorpe for instruction, Capts. G. A. MOORE, Brockton; D. S. LUCE, Canton; A. G. RICE, Springfield; Lieuts. C. F. WILCOX, Jr., Boston; W. L. TUCKER, Hinsdale; J. E. DEMPSEY, Newton; H. H. BARD, Pittsfield; H. L. HIRSCH, Springfield; W. H. PULSIFER, Whitman.
To Hoboken, N. J., Lieuts. J. F. AHERN, R. D. MARGESON, Boston; J. H. BURKHEAD, Middleborough.
To Mineola, N. Y., Hazelhurst Field, Capt. H. J. HOWARD, Malden.
To New Haven, Conn., Capt. C. A. RILEY, Boston; Lieut. W. B. BARTLETT, Concord.
To Plattsburg Barracks, N. Y., Lieut. W. J. VIVIN, East Walpole.
To Washington, D. C., Capt. W. GOODELL, Springfield.

Michigan

To Camp Custer, Mich., Lieuts. S. K. KESHISHIAN, Detroit; W. N. BRALEY, H. F. NORTHRUP, Highland Park.
To Camp Shelby, Miss., base hospital, Lieut. J. K. ORMOND, Detroit.
To Fort Oglethorpe for instruction, Capts. J. E. MAUNDERS, B. R. SUMNER, Detroit; Lieuts. C. P. DOYLE, Frankfort; H. W. WILEY, South Haven.
To New York, Neurological Institute, for instruction, Lieut. C. S. KENNEDY, Detroit.

The following order has been revoked: *To New York*, Neurological Institute, for instruction, Capt. R. C. STONE, Battle Creek.

Minnesota

To Camp Grant, Ill., Lieut. F. R. PEARSON, St. Paul. Base hospital, Capt. K. BACON, St. Paul.
To Denver, Colo., Lieut R. BOSWORTH, St. Paul.
To Fort Oglethorpe for instruction, Capt. W. J. COCHRANE, Lake City; Lieuts. T. A. LEE, Hibbing; J. E. O'DONNELL, Minneapolis.

Mississippi

To Camp Custer, Mich., Lieut. E. C. O'CAIN, Thomastown.
To Camp Grant, Ill., Lieut. E. R. NOBLES, Rosedale.
To Camp Sheridan, Ala., Capt. J. E. POWELL, Clinton; Lieut. R. W. HOWLAND, Fondren.
To Fort Oglethorpe for instruction, Capt. J. CRISLER, Jackson; Lieut. A. G. TOUCHSTONE, Meridian.

Missouri

To Camp Dodge, Iowa, Lieut. E. M. MOORE, Cordet.
To Camp Fremont, Calif., Lieut. A. B. JONES, Shackleford.
To Camp Grant, Ill., Capt. J. R. BRIDGES, Kahoka; Lieuts. C. T. RYLAND, Lexington; J. L. LOUTZENHISER, Ravanna.
To Camp Lee, Va., Lieut. A. L. FITZPORTER, St. Louis.
To Fort Oglethorpe for instruction, Capts. C. H. BRYANT, Kansas City; J. B. EURE, Poplar Bluff; O. W. CLABAUGH, Sedalia; O. C. RAINES, St. Louis; Lieuts. S. C. SLAUGHTER, Fredericktown; H. I. OWEN, Fulton; J. C. STARKS, Gower; E. L. SLOAN, Joplin; C. A. BROWN, E. L. MILLER, Kansas City; H. T. COLEMAN, Pattonville; O. F. FLADER, R. F. HYLAND, St. Louis.
To Fort Omaha, Neb., Lieuts. R. O. KELLY, Bunceton; W. G. ATWOOD, Carrollton; W. J. HANSEN, St. Joseph; O. B. ENGELMANN, H. H. HUGHART, J. S. SHEETS, St. Louis; J. M. RIGGS, Wayland.
To Fort Riley for instruction, Capt. G. Y. BRIGGS, St. Louis; Lieuts. O. L. RUTHERFORD, Bellflower; R. W. GAY, Ironton; A. C. FIELD, Kansas City.
To Louisville, Ky., Lieuts. A. L. MEREDITH, Prairie Home; E. B. KESSLER, St. Joseph.
To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. G. V. DORSHEIMER, Kansas City.
To Rockford, Ill., Capt. F. J. LONGFIELD, Lathrop; Lieut. F. M. SHAFER, Osborn.

Montana

To Fort Oglethorpe for instruction, Lieut. H. C. PARRISH, Fort Benton.
To Fort Riley for instruction, Capts. C. I. TITUS, Great Falls; M. D. RIDLE, Shelby; Lieuts. J. H. PHILLIPS, Butte; H. L. KOEHLER, Circle.

Nebraska

To Fort Oglethorpe for instruction, Lieuts. C. C. PAXTON, Archer; F. M. ANDRUS, Lincoln.
To Fort Riley, Lieut. J. L. MAGILL, Holdredge.

Nevada

To Camp Cody, N. M., base hospital, Capt. L. V. SMITH, Reno.
To Fort Oglethorpe for instruction, Lieut. J. B. WILSON, Rochester.

New Hampshire

To Camp Meade, Md., Lieut. A. LAGACE, Franklin.
To Fort Oglethorpe for instruction, Lieut. F. E. SPEAR, Woodsville.
To Plattsburg Barracks, N. Y., Lieut. B. E. SANBORN, Manchester.

New Jersey

To Camp Dix, N. J., Capt. C. H. MAYHEW, Millville.
To Camp Jackson, S. C., Lieut. W. F. COSTELLO, Dover.
To Camp Leach, D. C., Lieut. H. W. BROWN, Jersey City.
To Camp Lee, Va., Lieut. T. R. ADAMS, Califon.
To Fort Oglethorpe for instruction, Capts. A. NELSON, Jersey City; F. R. HAUSSLING, N. G. PRICE, Newark; J. N. RYAN, Passaic; Lieuts. E. H. MOORE, Asbury; M. H. STEIN, Elizabeth; R. C. OWENS, Jersey City; J. H. LOWREY, Newark; R. D. VREELAND, Passaic.
To Hoboken, N. J., Lieut. V. M. D. MARCY, Cape May.
To Mineola, N. Y., Hazelhurst Field, Capt. C. WILLIAMS, Lakewood.
To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. A. AMOLS, Newark.

New Mexico

To Denver, Colo., Lieut. H. V. FALL, Roswell.

New York

To Camp A. A. Humphreys, Va., Lieut. J. J. McGLADE, New York.
To Camp Dix, N. J., Capt. M. S. POLAK, New York; Lieuts. O. P. JOSLIN, Great Bend; J. E. GETMEN, New York.
To Camp Jackson, S. C., base hospital, Major R. H. McCONNELL, New York.
To Camp Upton, N. Y., Lieuts. H. P. FOEHRENBACH, Brooklyn; C. T. FOWLER, Dexter; E. M. DINGS, Sacket Harbor.
To Fort Oglethorpe for instruction, Capts. R. L. SULLIVAN, Baldwinsville; C. B. M. DUGAN, Beacon; S. C. HOLLIS, Belleville; B. G. BALCKMAR, G. J. DOYLE, Brooklyn; G. R. CRITCHLOW, J. A. MACLEOD, Buffalo; T. D. BUCHANAN, J. S. K. HALL, E. W. HOLLADAY, H. E. MEEKER, A. A. MOORE, P. PRIOLEAU, New York; G. B. VAN DOREN, Watertown; J. S. PARKER, White Plains; J. P. TROTTER, Yonkers; Lieuts. W. A. BEHAN, Binghamton; L. L. COHAN, R. P. MORRISON, Brooklyn; J. G. KRAUSS, Elmhurst; J. A. G. MAC PHAIL, Katonah; M. H. BARSKY, J. BONDY, A. C. FREEMAN, F. C. KEIL, A. V. ROCKWELL, New York; T. F. MANLEY, H. W. McNITT, Norwich; C. F. POTTER, Syracuse.
To Hoboken, N. J., Capts. C. M. PIERO, Leicester; D. E. FRASER, Lyndonville; C. SUMNER, Rochester; Lieuts. R. M. HALL, Broadalbin; G. MANULKIN, Brooklyn.
To New Haven, Conn., Yale Army Laboratory School, for instruction, Capt. H. A. CRAIG, Staten Island; Lieut. L. B. SISSON, Auburn.
To Plattsburg Barracks, N. Y., Major J. R. HUNT, New York.
To report to the commanding general, Eastern Department, Capt. W. H. McGRAW, Cortland.
To Rockefeller Institute for instruction in laboratory work, Capt. O. T. AVERY, New York.

North Carolina

To Camp Wadsworth, S. C., Capt. J. E. KERR, Lilesville.
To Fort Oglethorpe for instruction, Lieut. J. L. ADAMS, Asheville.
To report to the governor of North Carolina, as medical aide, Capt. A. W. KNOX, Raleigh.

North Dakota

To Fort Oglethorpe for instruction, Capt. W. B. WANNER, Wimbledon.
To Fort Riley for instruction, Capt. G. A. SARCHET, New England; Lieut. J. SIMON, Kintyre.

Ohio

To Camp Custer, Mich., Lieuts. F. M. OXLEY, Cincinnati; A. T. CARTER, Cleveland; F. E. GINDER, Darbyville; W. D. GREGG, Dayton; R. A. H. KNISELY, Toledo; P. E. DECATUR, Washington Court House.
To Camp Holabird, Md., Lieut. Z. H. BALLMER, Toledo.
To Camp Leach, D. C., Capt. P. J. HANZLIK, Cleveland.
To Camp Lee, Va., Lieut. J. D. HARTZELL, North Star.
To Camp Shelby, Miss., base hospital, Lieut. W. J. SCOTT, Cleveland.
To Camp Zachary Taylor, Ky., Capt. E. H. KNOWLTON, Mantua; Lieuts. F. B. KALOR, Bellefontaine; C. G. GOLL, Stryker.
To Fort Oglethorpe for instruction, Capts. W. N. SHARP, Cleveland; M. H. CARMEDY, Painesville; C. W. WILLIARD, Tiffin; I. H. HAMMER, L. F. SMEAD, Toledo; W. E. RANZ, Youngstown; Lieuts. F. C. BISSELL, E. B. MALLOY, Akron; C. I. STEPHEN, Ansonia; H. K. LEEDS, W. A. TEVELUME, Cincinnati; J. R. MONTHAN, Cleveland; C. D. SIDLE, Convoy; M. H. BOWERS, Perrysburg; G. F. BAINTER, Strasberg; R. L. BIDWELL, R. E. SINEK, Toledo.
To Fort Wayne, Mich., Capt. C. O. BEARDSLEY, Ottawa; Lieuts. L. C. NEISWANDER, Ada; H. L. MECKSTROTH, Dayton; W. H. BENNER, Tiffin; F. A. COBB, Toledo.
To Louisville, Ky., Lieut. A. M. CURL, Quincy.
To New York, Neurological Institute, Lieut. J. R. Davis, Toledo.

Oklahoma

To Camp MacArthur, Texas, Capt. H. A. LILE, Cherokee; Lieut. I. C. MORRIS, Cushing.
To Fort Oglethorpe for instruction, Capts. J. H. SCOTT, Shawnee; W. W. WOODY, Tulsa.
To Fort Riley, Capt. J. S. VITTUM, Muskogee; Lieut. H. E. HUSTON, Aline.

Oregon

To Fort Riley for instruction, Capt. J. D. STERNBERG, Portland; Lieut. G. S. NEWSOM, Athena.
To Palo Alto, Calif., Capt. H. I. KEENEY, Portland; Lieut. E. J. CROWTHERS, Austin.

Pennsylvania

To Camp A. A. Humphreys, Va., Lieut. D. W. LEWIS, Philadelphia.
To Camp Colt, Pa., Lieut. C. M. KERWIN, Northwales.
To Camp Dix, N. J., Lieuts. A. V. PERSING, Allenwood; L. H. HENDRIXSON, New Holland.
To Camp Leach, D. C., Lieut. A. A. COLLINS, Oxford.
To Camp Upton, N. Y., Lieuts. C. B. DENNY, Oakdale; R. C. PARRISH, Philadelphia; W. W. McFARLAND, Pittsburgh; R. W. LENKER, West Lenport.
To Fort Oglethorpe for instruction, Capts. W. A. JONES, Hays; W. T. ELLIS, C. S. WILLIAMS, Philadelphia; M. M. DENLINGER, Rohrerstown; Lieuts. W. B. SHEPARD, Bellevue; J. M. LEONARD, Blairsville; M. J. McCALLUM, Erie; A. SILVERMAN, Philadelphia; J. W. FISHER, A. H. JAHN, W. H. RODGERS, H. L. SHAFFER, Pittsburgh.
To Hoboken, N. J., Lieut. J. P. MAYER, Philadelphia.
To Lakehurst, N. J., Lieut. P. N. WENTZ, York.
To New Haven, Conn., Lieut. G. FLANNERY, Philadelphia.
To Wrightstown, N. J., Capt. W. McKEAGE, Philadelphia.

South Carolina

To Camp Jackson, S. C., Lieuts. R. ACKERMAN, Walterboro; J. J. GLENN, Yorkville.
To Camp Wadsworth, S. C., Lieut. W. A. BROWN, Georgetown.
To New Haven, Conn., Major D. M. JAMES, York.
The following order has been revoked: *To Camp Shelby, Miss.*, base hospital, Lieut. V. W. BRATHAM, Orangeburg.

South Dakota

To Fort Oglethorpe for instruction, Capt. W. D. FARRELL, Aberdeen.

Tennessee

To Camp McClellan, Ala., Lieuts. J. JACKSON, Dyer; W. M. HARDY, Nashville.
To Camp Sevier, S. C., Lieut. W. L. MEDLING, Dyer.
To Camp Pike, Ark., base hospital, Lieut. W. B. Sharp, Nashville.
To Fort Oglethorpe for instruction, Capt. J. H. McCLURE, Nashville.

Texas

To Camp Cody, N. M., Lieut. G. L. MONTGOMERY, Aquilla.
To Camp Logan, Texas, Lieuts. J. P. HARRIS, Midlothian; R. R. MAY, Whitewright.
To Camp MacArthur, Texas, Capt. M. C. HAGLER, New Braunfels; Lieut. J. H. TRAYLOR, Cuero.
To Fort Oglethorpe for instruction, Lieut. W. WALKER, Fort Worth.
To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. G. TURNER, Iredell.

Utah

To Fort Riley for instruction, Lieuts. H. W. NELSON, Ogden; J. M. THORUP, Salt Lake City.

Vermont

To Camp Meade, Md., Lieut. R. J. GOSS, Wilder.
To Montpelier, Vt., as medical aide to the governor of Vermont, Capt. J. H. WOODRUFF, Barre.

Virginia

To Camp A. A. Humphreys, Va., Lieut. P. C. HUNDLEY, Pembroke.
To Camp Dix, N. J., Lieut. E. A. HOLMES, Bradford.
To Camp Meade, Md., Capt. W. L. McGILL, Petersburg; Lieut. S. G. Gill, Hopewell.
To Camp Zachary Taylor, Ky., Lieut. G. B. MARTIN, Richmond.
To Fort Oglethorpe for instruction, Capt. M. J. PAYNE, Staunton; Lieut. H. W. PATTON, Hemp.
To Hoboken, N. J., Capt. T. E. RUCKER, Lynchburg; Lieut. R. R. GOAD, Dug Spur.
To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. G. A. L. KOLMER, Salem.
To Washington, D. C., Major C. C. COLEMAN, Richmond.
To Wrightstown, N. J., Capt. G. H. THOMAS, Staunton.

Washington

To Camp Fremont, Calif., Lieuts. C. A. LEWIS, Fairfield; S. J. ROWLAND, Toppenish; A. E. McDOWELL, West Seattle.
To Camp Lewis, Wash., base hospital, Capt. E. L. REGER, Spokane.
To Fort Riley for instruction, Lieuts. R. R. KERKOW, Valley; H. H. SKINNER, North Yakima.
To San Francisco, Calif., Lieut. D. B. HARVISON, Palouse. Letterman General Hospital, Capt. J. T. WHITTY, Seattle.

West Virginia

To Camp A. A. Humphreys, Va., Lieut. J. E. WOMACK, Summit Point.
To Camp Greene, N. C., Lieut. J. U. KIMBLE, Newburg.
To Fort Oglethorpe for instruction, Capt. T. J. McGUIRE, Parkersburg.
To Fort Riley for instruction, Lieut. W. H. YOUNG, Sistersville.

Wisconsin

To Camp Custer, Mich., Capt. W. G. LAW, Clidden; Lieuts. G. E. ARMSTRONG, New London; R. K. LOHMILLER, Superior; L. H. A. NOWACK, Watertown.
To Camp Grant, Ill., Lieuts. H. C. WIGER, Dallas; W. J. McLAUGHLIN, Stockbridge.
To Fort Oglethorpe for instruction, Lieut. A. M. FOSTER, Kaukauna.
To Fort Riley for instruction, Capt. C. F. MYRE, Chippewa Falls; Lieut. W. C. REINEKING, Markesan.

Wyoming

To Fort Riley for instruction, Lieuts. L. E. KINDALL, Kemmerer; W. LOWE, Sunrise.

ORDERS TO OFFICERS OF THE MEDICAL CORPS, U. S. ARMY

Alabama

To Camp Joseph E. Johnston, Fla., Lieut. R. C. McQUIDDY, Birmingham.
To Camp Lee, Va., Lieuts. J. W. SIMPSON, Athens; W. N. McCLURKIN, Camden.
To Camp Sevier, S. C., from duty as an enlisted man, Lieut. T. D. COWLES, Mobile.
To Camp Shelby, Miss., evacuation hospital, from Camp Logan, Lieut. J. H. HAYS, Bessemer.
To Camp Sherman, Ohio, from Hoboken, Major W. H. OATES, Mobile.
To Camp Zachary Taylor, Ky., base hospital, from Fort Oglethorpe, Lieut. R. M. KIMBROUGH, Thomasville.
To Fort Oglethorpe for instruction, Lieut. T. W. JONES, Camden.
To Fort Wayne, Mich., from Americus, Ga., Capt. A. P. WEBB, Atmore.
The following order has been revoked: *To Camp Sheridan, Ala.*, Lieut. O. E. WILSON, Birmingham.

Arizona

To Camp A. A. Humphreys, Va., from Hot Springs, N. C., Lieut. W. N. McDUFFIE, San Carlos.

Arkansas

To Camp Lee, Va., as orthopedic surgeon, from Army Medical School, Lieut. E. B. BUCHANAN, Texarkana.
To Camp MacArthur, Texas, base hospital, Capt. A. G. THIOLLIERE, Varner.
To Camp Zachary Taylor, Ky., base hospital, from Jefferson Barracks, Lieut. N. MUMEY, Little Rock.
To Fort Riley for instruction, Lieut. J. F. BELL, Rison.
To Fort Screven, Ga., from Southeastern Department, Lieut. E. S. BAKER, Paragould.
To Washington, D. C., Surgeon-General's Office, from Camp Pike, Col. J. T. CLARKE.

California

To Camp Beauregard, La., evacuation hospital, from Camp Fremont, Capt. B. F. MILLER, Whittier; from Camp Logan, Major H. W. HORN, San Francisco.
To Camp Dix, N. J., from Lakewood, Capt. F. M. HILLYER, San Francisco.
To Camp Dodge, Iowa, evacuation hospital, from Camp Cody, Lieut. J. N. CHAIN, Eureka; from Fort McDowell, Lieut. E. W. MEYER, Patton.
To Camp Fremont, Calif., Lieut. A. M. THOMSON, Sonoma.
To Camp Gordon, Ga., base hospital, from Fort Oglethorpe, Lieut. J. R. SHEA, Los Angeles; from the Surgeon-General's Office, Capt. A. M. MEADS, Berkeley.
To Camp Kearney, Calif., base hospital, Capt. J. S. TREWHELLA, Montebello.
To Camp Lewis, Wash., base hospital, from Camp Fremont, Lieut. O. M. HARRAH, LaManda Park.
To Camp Shelby, Miss., evacuation hospital, from Camp Kearney, Capt. T. F. TILLMAN, San Francisco; Lieuts. P. N. SIMS, Calexico; E. H. HALL, Los Angeles; J. H. BREYER, Pasadena; J. S. COCHRAN, San Diego; W. T. McNEIL, Stockton.
To Camp Wadsworth, S. C., from Western Department, Lieut. M. B. FRACTMAN, San Francisco.
To Fort Sill, Okla., base hospital, from Camp Sheridan, Lieut. R. A. CARTER, Los Angeles.
To Leon Springs, Texas, from Camp Cody, Lieut. S. M. ATKINS, San Jose.
To Mineola, N. Y., Hazelhurst Field, for instruction, Lieut. C. E. HOLGATE, Los Angeles.
To Morrison, Va., from Lee Hall, Va., Lieut. W. B. THOMPSON, San Francisco.
To report to the commanding general, Western Department, from San Francisco, Lieut. E. R. COX, Los Angeles; from Vancouver Barracks, Major E. I. SWIFT, Fort McDowell.
To San Francisco, Calif., for observation and treatment, from Los Angeles, Lieut.-Col. W. E. PURVIANCE, Los Angeles. Letterman General Hospital, from Western Department, Lieut. J. I. BOYER, Los Angeles.

Canal Zone

To San Francisco, Calif., from Panama Canal Department, Col. W. H. WILSON.

Colorado

To Camp Greene, N. C., base hospital, Lieut. E. A. CORBIN, Denver.
To Camp Kearney, Calif., base hospital, Capt. J. R. ARNEILL, Denver.
To Camp MacArthur, Texas, from Nogales, Ariz., Capt. R. L. DRINKWATER, Denver.
To Camp McClellan, Ala., base hospital, from Fort Oglethorpe, Capt. H. W. WILCOX, Denver. Evacuation hospital, from Camp Travis, Lieut. J. D. DAVIES, Alamosa.
To Camp Pike, Ark., base hospital, from Fort Oglethorpe, Capt. T. L. A. SHAFFER, Salida.
To Camp Sherman, Ohio, evacuation hospital, from Camp Custer, Major J. C. EPLER, Pueblo.
To Camp Travis, Texas, as orthopedic surgeon from Fort Oglethorpe, Capt. GILLASPIE, Boulder.
To Camp Wheeler, Ga., evacuation hospital, from New Haven, Lieut.-Col. A. M. FORSTER, Colorado Springs.
To Denver, Colo., Capts. L. W. BORTREE, Colorado Springs; E. W. COLLINS, Denver.
To Fort Oglethorpe for instruction, Lieut. W. H. L. LEWIS, Hotchkiss.
To Fort Riley for instruction, Lieut. R. L. GLEASON, Wellington.

Connecticut

To Camp Hancock, Ga., evacuation hospital, from Fort McPherson, Lieut. J. A. HARTEN, New Haven.
To Camp Jackson, S. C., base hospital, from Camp Sherman, Lieut.-Col. L. I. MASON, Willimantic.
To Fort Riley, base hospital, from Fort Oglethorpe, Lieut. J. H. BIRAM, Hartford.
To New Haven, Conn., Lieut. H. W. BRAYTON, Hartford.
To Waco, Texas, Rich Field, from Mineola, Lieut. J. D. RUSSO, New Haven.
To Whipple Barracks, Ariz., from New Haven, Capt. F. J. RONAYNE, Hartford.

District of Columbia

To Camp Custer, Mich., as orthopedic surgeon, from Camp Devens, Capt. H. L. SCHURMEIER, Washington.
To Camp Dodge, Iowa, evacuation hospital, from Walter Reed General Hospital, Capt. W. H. HUNTINGTON, Washington.
To Camp Gordon, Ga., as camp surgeon, from Central Department, Col. F. T. WOODBURY.
To Camp McClellan, Ala., from Fort Oglethorpe, Lieut. M. J. HERSCHMAN, Washington. Evacuation hospital, from Fort McPherson, Major J. F. MITCHELL, Washington.
To Camp Meade, Md., evacuation hospital, from the Surgeon-General's Office, Lieut.-Col. E. KING.
To Camp Sevier, S. C., from Camp Jackson, Major F. LEECH, Washington.
To Washington, D. C., St. Elizabeth's hospital, from Camp Devens, Capt. L. M. WHITE, Washington.
To Williamsbridge, N. Y., from Camp Jackson, Capt. H. L. HAYES, Washington.

Florida

To Atlanta, Ga., Capt. J. F. WILSON, Jr., Lakeland.
To Camp Lee, Va., base hospital, from Fort McHenry, Capt. A. N. FREEMAN, Starke.
To Camp MacArthur, Texas, base hospital, from Fort Oglethorpe, Lieut. O. G. KENDRICK, Tallahassee.
To Camp Sheridan, Ala., from Panama Canal Department, Capt. M. E. HECK, St. Augustine.
To Fort Barrancas, Fla., from Camp Joseph E. Johnston, Capt. S. R. M. KENNEDY, Pensacola.
To Lakewood, N. J., Lieut. A. J. WOOD, St. Petersburg.

Georgia

To Camp Beauregard, La., base hospital, from Camp Logan, Lieut. H. M. McGEHEE, Atlanta.
To Camp Dodge, Iowa, evacuation hospital, from New York, Capt. B. S. MOORE, Atlanta.
To Camp Gordon, Ga., base hospital, Capt. W. E. QUILLIAN, Atlanta; Lieut. T. G. RITCH, Odum.
To Camp Hancock, Ga., evacuation hospital, from Fort McPherson, Lieut. H. W. SHAW, Augusta.
To Camp Joseph E. Johnston, Fla., Lieut. G. G. WILLIFORD, Lenox.
To Camp Kelly, Texas, from Buffalo, Lieut. J. H. HERNDON, Atlanta.
To Camp Lee, Va., base hospital, from Fort Oglethorpe, Capt. R. M. WARE, Fitzgerald.
To Camp Shelby, Miss., evacuation hospital, from Fort Logan H. Roots, Lieut. B. H. MINCHEW, Waycross.
To Camp Wadsworth, S. C., evacuation hospital, from Fort Oglethorpe, Capt. E. D. HIGHSMITH, Atlanta.
To Camp Wheeler, Ga., Lieut. H. E. HAMMETT, LaGrange.
To Camp Zachary Taylor, Ky., base hospital, from Fort Oglethorpe, Lieut. F. P. NORMAN, Greenville.
To Cape May, N. J., Capt. D. S. FREDERICK, Marshallville.
To Fairfield, Ohio, Wilbur Wright Field, from Lonoke, Ark., Capt. C. R. RINER, Summit.

To Fort Benjamin Harrison, base hospital, from Army Medical School, Lieut. E. R. ANTHONY, Jr., Griffin.
To Fort Oglethorpe, from Camp Wheeler, Capt. T. H. STEWART, Atlanta. Base hospital, from Camp Joseph E. Johnston, Lieut. P. H. CHRISTIAN, Columbus. For instruction, Capt. I. H. ADAMS, Macon; Lieut. W. H. HENDRICKS, Tifton.
To Fort Wayne, Mich., from Lake Charles, La., Capt. J. M. SPENCE, Camilla.
To Lakewood, N. J., Capt. A. J. WARING, Savannah.
To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. G. C. McKENZIE, Ashburn.
To St. Paul, Minn., Dunwoody Institute, from Columbus, Lieut. E. S. COLVIN, Atlanta.

Idaho

To Biltmore, N. C., for observation and treatment, from Waynesville, N. C., Lieut. C. WRIGHT, Fruitland.
To Camp MacArthur, Texas, as orthopedic surgeon, from Fort Oglethorpe, Lieut. J. R. YOUNG, Pocatello.
To Cooperstown, N. Y., from Mineola, Major F. H. POOLE, Pocatello.
To Fort Oglethorpe for instruction, Lieut. G. H. KENNET, Kellogg.

Illinois

To Camp Abraham Eustis, base hospital, from Fort Oglethorpe, Lieut. S. M. ROBERTS, Chicago.
To Camp Beauregard, La., base hospital, from Camp Sheridan, Lieut. A. THOMPSON, Chicago.
To Camp Cody, N. M., as tuberculosis examiner, from Camp Sheridan, Capt. E. S. GILLESPIE, Wenona.
To Camp Custer, Mich., as tuberculosis examiner, from Camp Greene, Lieut. A. S. CAMPBELL, Oak Forest. Base hospital, Lieut. J. T. MEYER, Chicago.
To Camp Devens, Mass., as orthopedic surgeons, and on completion *to Boston, Mass.*, Harvard Graduate School of Medicine, for instruction, from Fort Oglethorpe, Capts. W. F. McNARY, East St. Louis; J. J. RACON, Peoria. Base hospital, from Fort Oglethorpe, Lieut. G. L. McKINNEY, East Alton.
To Camp Dodge, Iowa, evacuation hospital, from Camp Pike, Lieut. J. D. McCULLOUGH, Jr., Aurora.
To Camp Fremont, Calif., from Camp Lewis, Lieut. F. J. SCHICK, Chicago.
To Camp Gordon, Ga., Lieut. F. H. YATES, St. Peter. Base hospital, Lieut. E. HUBBARD, Peoria; from Camp McClellan, Lieuts. A. H. CARTER, Chicago; A. Da FREITAS, Springfield; from Camp Shelby, Lieut. M. S. HARMON, Chicago; from Camp Zachary Taylor, Lieut. T. V. DAGNAULT, Chicago.
To Camp Grant, Ill., Capt. H. T. MORRISON, Springfield.
To Camp Logan, Texas, base hospital, Lieut. O. W. SIMPSON, Peoria.
To Camp Meade, Md., from Fort Oglethorpe, Capt. T. C. HAYS, Canton.
To Camp Shelby, Miss., as orthopedic surgeon, from Fort Oglethorpe, Lieut. Y. JORDANSON, Chicago.
To Camp Sheridan, Ala., as orthopedic surgeon, from Fort Oglethorpe, Lieut. M. F. McGUIRE, Chicago.
To Camp Sherman, Ohio, from Camp Dodge, Lieut. J. HIGGINSON, Chicago; from Hoboken, Major F. PRESNELL, Chicago. Base hospital, from Central Department, Major J. R. McKNIGHT, Chicago. Evacuation hospital, from Camp Zachary Taylor, Capt. L. L. FRISQUE, Chicago; from New York, Lieut. F. M. SYLVESTER, Oak Park.
To Camp Upton, N. Y., from Buffalo, Lieut. A. T. WEBER, Chicago.
To Camp Wadsworth, S. C., as orthopedic surgeon, from Camp Grant, Lieut. M. J. KOSTRZEWSKI, Chicago. Evacuation hospital, from Camp Sevier, Capt. M. A. GIER, Chicago.
To Camp Wheeler, Ga., from Fort Riley, Capt. T. C. COGGSHALL, Henry; Lieut. W. F. CANNON, Kankakee. Evacuation hospital, from Camp MacArthur, Lieut. G. J. TORELL, Chicago; from Camp Upton, Capt. P. OLIVER, Chicago.
To Cape May, N. J., from New York, Capt. C. J. DAVIS, Deerfield.
To Chicago, Ill., as instructor in orthopedic surgery, from Fort Oglethorpe, Major J. RIDLON, Chicago.
To Fort Benjamin Harrison, from Fort Oglethorpe, Lieut. C. S. POWELL, Chicago; from Fort Riley, Major J. H. HESS, Chicago; from Jefferson Barracks, Lieut. E. H. DUFOUR, Chicago. Base hospital, from Fort Riley, Lieut. R. R. McCARTHY, Chicago.
To Fort Leavenworth, Kan., from Fort Riley, Capt. G. H. COTTRAL, Savanna.
To Fort Riley, Lieut. E. C. ROOS, Oak Park. Base hospital, from Camp Devens, Lieut. M. J. LATIMER, Chicago. For instruction, Lieuts. H. L. PETTIT, Morrison; F. D. HUBER, Pleasant Plains.
To Fort Snelling, Minn., base hospital, from Camp Grant, Lieut. W. J. RILEY, Chicago.
To Garden City, N. Y., Lieut. C. H. VEROVITZ, Chicago.
To Jefferson Barracks, Mo., base hospital, from Fort Riley, Capt. E. Z. LEVITIN, Peoria.
To Lakewood, N. J., Lieut. E. S. MELOY, Highland.
To Leon Springs, Texas, from Camp Cody, Lieut. W. H. ACKER, Chicago.
To Minoola, N. Y., Hazelhurst Field, for instruction, Lieut. S. M. MERWITZ, Chicago; from Lake Charles, La., Capt. F. CARY, Chicago.
To New Haven, Conn., Capt. A. H. BEEBE, Stillman Valley.
To report to the commanding general, Panama Canal Department, from Southern Department, Capt. W. E. HERVEY, Chicago.
The following order has been revoked: *To Camp Dodge, Iowa*, Capt. J. L. MANNING, Chicago.

Indiana

To Ann Arbor, Mich., University of Michigan, Lieut. G. H. McCASKEY, West Newton.
To Camp Abraham Eustis, Va., base hospital, from Camp Meade, Lieut. J. L. GLENDENING, Indianapolis.
To Camp Alfred Vail, N. J., Lieut. C. L. ROWELL, Valparaiso.
To Camp Beauregard, La. evacuation hospital, from Camp Wheeler, Capt. G. B. JACKSON, Indianapolis.
To Camp Dodge, Iowa, evacuation hospital, from Camp Custer, Capt. F. H. KELLY, Argos.
To Camp Gordon, Ga., base hospital, from Camp Shelby, Lieut. J. E. BRENNER, Winchester; from Fort Oglethorpe, Lieut. M. M. MORAN, Portland.
To Camp Greene, N. C., evacuation hospital, from Camp Hancock, Lieut. L. W. SMITH, Warren.
To Camp Jackson, S. C., base hospital, from Fort Oglethorpe, Capt. J. W. SHAFER, Lafayette.
To Camp McClellan, Ala., evacuation hospital, from Fort McPherson, Capt. H. C. WADSWORTH, Washington.
To Camp Meade, Md., from Fort Oglethorpe, Lieut. L. H. STAFFORD, Indianapolis.
To Camp Newton D. Baker, Texas, base hospital, from Fort Riley, Lieut. B. R. KIRKLIN, Muncie.
To Camp Perry, Ohio, from Central Department, Major M. R. COMBS, Terre Haute.
To Camp Sherman, Ohio, to examine the command for nervous and mental diseases, Capt. F. W. TERFLINGER, Logansport.
To Camp Zachary Taylor, Ky., as orthopedic surgeon, from Fort Oglethorpe, Capt. J. B. YOUNG, Cumberland. Base hospital, from Army Medical School, Lieut. E. M. KIME, Indianapolis; from Fort Oglethorpe, Capt. A. L. BRAMKAMP, Richmond.
To Fort Oglethorpe for instruction, Capt. J. E. P. HOLLAND, Bloomington; Lieut. O. C. STEPHENS, Fort Branch.
To Garden City, N. Y., Lieut. P. J. COULTAS, Bristow.
To Hoboken, N. J., from New Haven, Lieut. F. P. HUNTER, Lafayette. Base hospital, from Fort Des Moines, Capt. J. C. GLACKMAN, Hatfield.
To Jefferson Barracks, Mo., base hospital, from Camp Upton, Capt. W. C. MOSS, Bunker Hill.
To Lakewood, N. J., Lieut. G. N. DRULEY, North Webster.
To Otisville, N. Y., from New Haven, Capt. M. L. SAMMS, Batesville.

Iowa

To Camp Custer, Mich., Capt. J. B. NAFTZGAR, Sioux City.
To Camp Dix, N. J., base hospital, from Fort Oglethorpe, Lieut. T. F. E. BESS, Fort Madison.
To Camp Dodge, Iowa, base hospital, Capt. G. L. PRENTICE, Troy.
To Camp Gordon, Ga., base hospital, from Camp McClellan, Lieut. C. W. TIDBALL, Independence.
To Camp Grant, Ill., evacuation hospital, from Army Medical School, Lieut. S. D. JONES, Fort Dodge.
To Camp Greene, N. C., from Garden City, Lieut. L. D. HUFF, Lenox.
To Camp Hancock, Ga., evacuation hospital, from Fort Oglethorpe, Lieut. C. E. CHENOWETH, Iowa City.
To Camp Jackson, S. C., base hospital, from Fort Oglethorpe, Major P. B. McLAUGHLIN, Sioux City.
To Camp McClellan, Ala., evacuation hospital, from Camp Shelby, Capt. W. C. NEWELL, Ottumwa.
To Camp Meade, Md., from the Surgeon-General's Office, Lieut. G. H. STEELE, Belmond.
To Camp Wadsworth, S. C., evacuation hospital, from Camp Sevier, Lieut. D. H. OSBORN, Monticello; from Southeastern Department, Capt. A. C. STRONG, Burlington.
To Camp Wheeler, Ga. as orthopedic surgeon, from Fort Oglethorpe, Lieut. H. L. von LACKUM, Iowa City.
To Jefferson Barracks, Mo., from Camp Dodge, Lieut. J. S. CALDWELL, Lenox.
To Fort Riley, base hospital, from Camp Travis, Lieut. L. D. McNAUGHTON, Eagle Grove.
To Fort Williams, Me., from Fort Riley, Lieut. M. N. GERNSEY, Waverly.
To Lakewood, N. J., Lieut. J. S. KNIPE, Armstrong.
To Washington, D. C., Surgeon-General's Office, from Camp Gordon, Capt. J. V. KEOGH, Dubuque.
The following order has been revoked: *To Rochester, Minn.*, Mayo Clinic, for instruction, and on completion *to his proper station*, from Camp Zachary Taylor, Lieut. A. E. ACHER, Fort Dodge.

Kansas

To Camp Beauregard, La., base hospital, from Camp Gordon, Lieut. L. D. MABIE, Kansas City. Evacuation hospital, from Camp Bowie, Lieut. A. L. KNISELY, Liberal; from Camp Cody, Capt. F. H. SLAYTON, Wichita.
To Camp Grant, Ill., *to examine the command* for nervous and mental diseases, Capt. F. A. CARMICHAEL, Onawatomie.
To Camp Logan, Texas, from Fort Riley, Capt. G. R. GAGE, Hutchinson.
To Camp Wheeler, Ga., from Fort Riley, Lieut. W. B. BURR, Longton. Evacuation hospital, from Camp Gordon, Lieut. J. H. HANSEN, Elkhart.
To Fort Riley, base hospital, Lieut. G. H. ALLEN, Topeka; from Camp Travis, Lieut. W. R. BRADY, Parsons. For instruction, Capt. D. I. MAGGARD, Wichita.
To Walter Reed General Hospital, D. C., for observation and treatment, Lieut. W. L. BUTLER, Stafford.

Kentucky

To Camp A. A. Humphreys, Va., from Hot Springs, N. C., Capt. B. K. MENEFEE, Covington.
To Camp Abraham Eustis, Va., base hospital, from Fort Oglethorpe, Lieut. H. H. RICHESON, Campbellsville.
To Camp Beauregard, La., base hospital, from Camp Sheridan, Capt. E. R. BUSH, Winchester.
To Camp Forrest, Ga., from Fort Oglethorpe, Capt. S. L. POTTINGER, Louisville.
To Camp Gordon, Ga., Lieut. J. P. WYLES, Cynthiana. Base hospital, Capt. A. V. MENEFEE, Williamstown; from Camp Zachary Taylor, Major V. N. MEDDIS, Louisville.
To Camp Greene, N. C., evacuation hospital, from Southern Department, Lieut. E. L. DRAVO, Jeffersontown.
To Camp Joseph E. Johnston, Fla., Lieuts. S. R. STITH, Ekron; J. F. MARRS, Tompkinsville.
To Camp MacArthur, Texas, base hospital, from Fort Oglethorpe, Capt. J. K. FREEMAN, Louisville.
To Camp Meade, Md., from Fort Oglethorpe, Lieuts. J. F. DUNCAN, Bowling Greene; H. LYON, Winchester.
To Camp Sevier, S. C., Capt. J. W. NOLAN, Harlan.
To Camp Wheeler, Ga., evacuation hospital, from Camp Hancock, Lieut. H. P. HONAKER, Horse Cave.
To Columbia, Ohio, from Camp Colt, Capt. J. M. MORRIS, Chestnutburg.
To Fort McDowell, Calif., from Camp Lewis, Lieut. U. G. DAVIS, Hopkinsville.

To Fort Meyer, Va., Lieut. E. D. TURNER, Cave City.
To Fort Oglethorpe for instruction, Lieut. W. J. FLOWERS, Columbia.
To Fort Omaha, Neb., base hospital, from Army Medical School, Lieut. S. J. SMOCK, Glasgow.
To New Cumberland, Pa., from Camp Gettysburg, Capt. H. LUTEN, Fulton.

Louisiana

To Camp A. A. Humphreys, Va., from Fort Oglethorpe, Capt. C. P. MUNDAY, Shreveport.
To Camp Gordon, Ga., base hospital, from Fort Oglethorpe, Lieut. M. F. MEYER, New Orleans.
To Camp Hancock, Ga., evacuation hospital, from Fort McPherson, Lieut. E. L. KING, New Orleans.
To Camp MacArthur, Texas, base hospital, from Fort Oglethorpe, Capt. S. L. WHITE, Ruston.
To Camp Shelby, Miss., base hospital Lieut. O. B. HICKS, Shreveport.
To Hoboken, N. J., from Fort Oglethorpe, Capt. T. REGAN, Shreveport.
To Rockefeller Institute for instruction in bacteriology, from Camp Joseph E. Johnston, Lieut. J. R. STAMPER, Caspiana.

Maine

To Fort Oglethorpe for instruction, Lieut. F. H. FREEMAN, Sangerville.
To New York, City College, from Fort Oglethorpe, Capt. L. M. HOWES, Bangor.

Maryland

To Camp A. A. Humphreys, Va., to examine the command for cardiovascular diseases, from Lakewood, Lieut. C. V. McMEEN, Baltimore.
To Camp Crane, Pa., from Fort Riley, Lieut. J. P. EIDSON, Baltimore.
To Camp Joseph E. Johnston, Fla., to examine the command for nervous and mental diseases, from Camp Pike, Capt. M. LEVY, Baltimore.
To Camp Lee, Va., base hospital, Lieut. A. A. PARKER, Pocomoke City. *To examine the command* for cardiovascular diseases, from Lakewood, Lieut. W. L. BROSIUS, Baltimore.
To Camp Meade, Md., as orthopedic surgeon, from Fort Oglethorpe, Lieut. C. C. NICOLL, Baltimore. On completion *to Boston, Mass.*, Harvard Graduate School of Medicine, for instruction, from Fort Oglethorpe, Lieut. G. R. MICKLETWAITE, Baltimore.
To Camp Pike, Ark., from Fort Oglethorpe, Lieut. C. S. LENTZ, Baltimore.
To Camp Sherman, Ohio, base hospital, from Camp Meade, Lieut. L. A. M. KRAUSE, Baltimore.
To Camp Wheeler, Ga., evacuation hospital, from Fort Oglethorpe, Lieut. W. M. HOLLYDAY, Baltimore.
To Fort Oglethorpe for instruction, Lieuts. R. C. DODSON, Rising Sun; C. H. THOMAS, Westminster.
To Plattsburg Barracks, N. Y., from Camp Jackson, Lieut. L. B. HOHMAN, Baltimore.
To Washington, D. C., St. Elizabeth's Hospital, for intensive training, Lieut. E. C. REITZEL, Baltimore.
The following order has been revoked: *To Rockefeller Institute* for instruction, and on completion *to Camp Upton, N. Y.*, base hospital, Lieut. F. E. ROBERTS, Baltimore.

Massachusetts

To Boston, Mass., from Cambridge, Lieut. E. F. W. BARTOL, Lancaster; from duty as a contract surgeon, Lieut. G. H. POIRIER, Boston.
To Camp Cody, N. M., base hospital, from Fort Oglethorpe, Lieut. T. H. KENNY, Northampton.
To Camp Crane, Pa., from Camp Devens, Capt. A. W. FAIRBANKS, Boston; from Fort Slocum, Lieut. C. E. RODERICK, Boston.
To Camp Custer, Mich., as tuberculosis examiner, from Camp Greene, Lieut. J. J. COSGROVE, Westfield.
To Camp Devens, Mass., base hospital, Lieut. E. J. GRAINGER, Winthrop; from Fort Oglethorpe, Lieut. A. R. GARDNER, Lowell.
To Camp Dix, N. J., from New Haven, Lieut. F. A. STANWOOD, Wellesley Hills, base hospital, from Fort Oglethorpe, Capt. G. H. HILL, Worcester.
To Camp Greene, N. C., as orthopedic surgeon, from Fort Oglethorpe, N. W. GILLESPIE, Boston.
To Camp Hancock, Ga., as orthopedic surgeon, from Fort Oglethorpe, Lieut. A. KLEIN, Boston.
To Camp Jackson, S. C., base hospital, Major F. R. JOUETT, Cambridge.
To Camp Joseph E. Johnston, Fla., as orthopedic surgeon, from Fort Oglethorpe, Lieut. M. A. GILBERT, Chelsea.
To Camp MacArthur, Texas, base hospital, from Fort Oglethorpe, Capt. J. H. DEWEES, Boston.
To Camp McClellan, Ala., as orthopedic surgeon, and on completion *to Boston, Mass.*, Harvard Graduate School of Medicine, for instruction, from Fort Oglethorpe, Lieut. S. L. MARNOY, Chelsea.
To Camp Meade, Md., from Fort Riley, Major I. T. CUTTER, Winchester.
To Camp Sheridan, Ala., as orthopedic surgeon, from Fort Oglethorpe, Lieut. J. M. GILCHRIST, Springfield.
To Camp Sherman, Ohio, from Hoboken, Lieut. H. H. SUMNER, Lowell.
To Camp Wadsworth, S. C., evacuation hospital, from Camp Sevier, Lieut. M. P. MAHONEY, Lowell.
To Camp Wheeler, Ga., base hospital, Lieut. E. A. KNOWLTON, Holyoke. Evacuation hospital, from Camp Joseph E. Johnston, Lieut. F. S. CALDICOTT, Milford.
To Camp Zachary Taylor, Ky., base hospital, from Fort Oglethorpe, Lieut. C. C. PARKER, Jr., Roxbury.
Fort Benjamin Harrison, from Fort Oglethorpe, Capt. W. G. TURNER, Fall River. Base hospital, from Fort Oglethorpe, Lieut. C. L. HOITT, Lynn.
To Fort Oglethorpe for instruction, Lieut. L. H. ROCKWELL, Boston.
To Fort Snelling, Minn., base hospital, from Camp Grant, Capt. H. CARO, Chelsea.
To Fort Thomas, Ky., from Camp Upton, Lieut. H. M. STEWART, Pittsfield.
To Jefferson Barracks, Mo., base hospital, from Hoboken, Lieut. F. H. COFFIN, Haverhill.
To Lakewood, N. J., Capt. J. A. COCONI, Dorchester; from Camp Dix, Capt. G. M. ALBEE, Worcester.
To New Cumberland, Pa., Lieut. P. D. BLANCHARD, Lowell.
To report to the governor of Massachusetts for duty as medical aide, from Boston, Lieut. F. G. WHEATLEY, North Abington.
To Walter Reed General Hospital, D. C., Lieut. E. A. KNOWLTON, Holyoke; from Fort Oglethorpe, Lieuts. E. P. RUGGLES, A. D. VAMVAS, Boston.
To Washington, D. C., St. Elizabeth's Hospital, from Camp Custer, Lieut. J. L. McAUSLAN, Gardner.

Michigan

To Camp Beauregard, La., evacuation hospital, from Corpus Christi, Texas, Lieut. B. FRIEDLANDER, Saginaw.
To Camp Crane, Pa., from Camp Travis, Lieut. G. H. BAHLMAN, Flint.
To Camp Dix, N. J., as orthopedic surgeon, and on completion *to Boston, Mass.*, Harvard Graduate School of Medicine, for instruction, from Fort Oglethorpe, Lieut. R. S. CRON, Ann Arbor.
To Camp Grant, Ill., Lieut. L. L. YOUNGQUIST, Marquette.
To Camp Shelby, Miss., evacuation hospital, from Camp Dix, Capt. J. P. PRATT, Detroit; from Camp Dodge, Capt. R. D. McCLURE, Detroit.
To Camp Sherman, Ohio, evacuation hospital, from Camp Custer, Capt. S. V. BARNUM, Coloma.
To Dayton, Ohio, McCook Field, from Fairfield, Ohio, Capt. J. I. FROUDE, Detroit.
To Fort Douglas, Utah; Lieut. W. J. LOVERING, Detroit.
To Fort Riley, base hospital, from Camp Pike, Lieut. C. P. CLARK, Flint.
To New York City, neurological institute, for instruction, Capt. H. A. LUCE, Detroit.
To West Point, Miss., Payne Field, from Fort Oglethorpe, Lieut. D. A. COHOE, Detroit.
The following order has been revoked: *To Hoboken, N. J.*, from Camp Sherman, Capt. R. BEATTIE, Detroit.

Minnesota

To Camp Beauregard, La., base hospital, from Camp A. A. Humphreys, Lieut. W. H. HALLORAN, St. Paul.
To Camp Custer, Mich., base hospital, from New York, Capt. U. V. PORTMANN, Jackson.
To Camp Dix, N. J., base hospital, Capt. F. W. BRIGGS, Moorhead.
To Camp Grant, Ill., Capt. C. L. GREENE, St. Paul.
To Camp Jackson, S. C., as orthopedic surgeon, from Fort Oglethorpe, Lieut. B. T. BOTTELFSON, Halstad.
To Camp Meade, Md., from Camp Lee, Major J. C. SESSIONS, Minneapolis.
To Camp Sherman, Ohio, evacuation hospital, from Camp Custer, Capt. A. F. MOYNIHAN, Sauk Centre; from Camp Custer, Lieut. G. C. ROSKILLY, Deer Creek; from Camp Dodge, Lieut. F. N. KNAPP, St. Paul.
To Camp Zachary Taylor, Ky., base hospital, from Fort Oglethorpe, Lieut. H. OERTING, Minneapolis.
To Fort Douglas, Utah, from Camp Dodge, Lieut. W. J. McKILLIP, Duluth; from Fort Oglethorpe, Lieut. A. W. DREW, Swainville.
To Fort Riley, base hospital, from Camp Dodge, Capt. W. W. LEWIS, St. Paul.
To Fort Screven, Ga., from Fort Oglethorpe, Lieut. J. R. NANNESTAD, Albert Lea.
To New Haven, Conn., for observation and treatment, from Fort McHenry, Lieut. H. C. BUMPUS, Jr., Rochester.

Mississippi

To Camp Gordon, Ga., Lieut. V. M. CROTHERS, Lambert. Base hospital, Lieut. J. L. NICHOLS, Alligator.
To Camp John Wise, Texas, from West Point, Miss., Lieut. W. T. WATSON, Banner.
To Camp MacArthur, Texas, from Nogales, Ariz., Major J. C. BALLARD, Biloxi.
To Camp Wadsworth, S. C., evacuation hospital, from Camp Sevier, Capt. M. C. GARNER, Meridian.
To Fort McPherson, Ga., from Fort Oglethorpe, Capt. R. M. BUTLER, Jackson.
To Fort Oglethorpe for instruction, Lieut. M. TATE, Meridian.
The following order has been revoked: *To Camp Lewis, Wash.*, base hospital, Lieut. R. L. BEADLES, Coffeeville.

Missouri

To Camp A. A. Humphreys, Va., from Fort Oglethorpe, Lieut. J. D. MOULDER, Linn Creek.
To Camp Beauregard, La., base hospital, from Camp Logan, Lieut. J. R. RANSON, St. Louis; from Camp Sheridan, Capt. J. C. BOONE, Charleston; from Fort Oglethorpe, Capt. R. E. WOBUS, St. Louis; Lieut. R. H. UNDERWOOD, Kansas City; from Fort Riley, Capt. C. MARTIN, St. Louis.
To Camp Dodge, Iowa, base hospital, Major M. A. GOLDSTEIN, St. Louis; Lieuts. H. B. PRYOR, Ashland; G. W. GAINES, Knoxville; J. C. POTTER, St. Louis.
To Camp Gordon, Ga., base hospital, Capt. L. H. BEHRENS, St. Louis; Lieuts. H. A. ELKINS, Hardin; R. H. MILLIGAN, Kearney.
To Camp Hancock, Ga., evacuation hospital, from Fort McPherson, Capt. W. P. GLENNON, St. Louis.
To Camp Logan, Texas, from Fort Riley, Lieut. J. H. STAPP, Hardin.
To Camp Sevier, S. C., base hospital, from Camp Greene, Lieut. C. H. SHUMAKER, St. Louis.
To Camp Shelby, Miss., from Fort Oglethorpe, Capt. R. H. MORRIS, Kansas City.
To Camp Travis, Texas, base hospital, Capt. H. C. CREVELING, St. Louis.
To Camp Wadsworth, S. C., from Fort Riley, Lieut. D. L. GOLDBERG, St. Louis. Evacuation hospital, from Camp Jackson, Lieut. U. S. SHORT, St. Louis.
To Camp Wheeler, Ga., from Fort Riley, Capt. W. K. STATLER, Oak Ridge; Lieut. E. F. HIGDON, St. Joseph.
To Charleston, S. C., from Camp Bowie, Capt. R. F. MILLS, Odessa.
To Denver, Colo., from Fort Riley, Capt. S. R. JOHNSON, St. Charles.

To Fort Leavenworth, Kan., from Fort Riley, Capt. J. F. GRACE, Excelsior Springs.

To Fort Oglethorpe for instruction, Capts. J. E. BAIRD, Excelsior Springs; W. C. GAYLOR, Lieut. A. A. MARGULIS, St. Louis.

To Fort Riley for instruction, Capts. D. E. BLACKLOCK, King City; H. G. FARME, Mountain Grove; Lieuts. G. O. WILHITE, Centertown; E. D. JAMES, Joplin; R. F. VIEHOE, St. Louis.

To Fort Sill, Okla., from Camp Perry, Major F. W. SHAW, Mount Vernon.

To Fort Wayne, Mich., from Montgomery, Ala., Lieut. D. B. HAWORTH, Kansas City.

To Eureka, Ark., Eberts Field, from Camp McClellan, Lieut. B. J. WIESNER, St. Louis.

To New Haven, Conn., Yale Army Laboratory School, for instruction, Capt. R. H. MAJOR, Liberty.

Montana

To Fort Oglethorpe for instruction, Lieut. C. S. KOUTZ, Havre.

The following order has been revoked: *To Rochester, Minn.*, Mayo Clinic, for instruction, and on completion *to his proper station*, Lieut. J. J. TOBINSKI, Missoula.

Nebraska

To Aberdeen, Md., from Fort Oglethorpe, Capt. J. A. TROWBRIDGE, Superior.

To Camp Hancock, Ga., evacuation hospital, from Camp Pike, Capt. H. A. JOHNSON, Tekamah.

To Camp Kearney, Calif., from Western Department, Lieut. O. P. SCHNETSKY, Schuyler.

To Fort D. A. Russell, Wyo., Capt. J. H. PLUMB, York.

To Hoboken, N. J., from New Haven, Lieut. W. C. BECKER, Papillion.

To Washington, D. C., St. Elizabeth's Hospital, Capt. S. J. STEWART, Hastings.

New Hampshire

To Camp Dix, N. J., as orthopedic surgeon, and on completion *to Boston, Mass.*, Harvard Graduate School of Medicine, for instruction, from Fort Oglethorpe, Lieut. E. A. JONES, Manchester.

To Camp Lee, Va., base hospital, from Fort Oglethorpe, Lieut. A. BORLAND, Meredith.

To Camp Zachary Taylor, Ky., base hospital, from Fort Oglethorpe, Lieut. A. F. MULVANITY, Nashua.

To Fort Sill, Okla., from Fort Oglethorpe, Capt. N. E. GUILLET, Manchester.

New Jersey

To Arcadia, Fla., Carlstrom Field, from Mineola, Lieut. J. W. HURFF, Newark.

To Camp Fremont, Calif., as tuberculosis examiner, from Camp Kearney, Major R. BEW, Atlantic City.

To Camp Hancock, Ga., base hospital, from Camp Bowie, Major G. C. ALBEES, South Orange.

To Camp Lee, Va., from Southern Department, Major C. E. MACDONALD, Salem. Base hospital, Lieut. H. H. JOHNSTON, Jersey City.

To Camp Meade, Md., to examine the command for nervous and mental diseases, Lieut. E. B. FUNKHOUSER, Trenton.

To Camp Wadsworth, S. C., evacuation hospital, from Camp Hancock, Lieut. E. L. MINARD, East Orange.

To Camp Wheeler, Ga., base hospital, from Fort Oglethorpe, Capt. W. J. ARLITZ, Hoboken.

To Fort Oglethorpe, as instructor, from Camp MacArthur, Capt. G. THORBURN, Newark.

To Fort Riley, base hospital, from New York, Lieut. A. L. L. BELL, Englewood.

To Mineola, N. Y., Hazelhurst Field, for instruction, from Camp Gordon, Lieut. J. S. VANNEMAN, Princeton.

To Syracuse, N. Y., from Camp Dix, Lieut. J. WECHSLER, Jersey City.

To Walter Reed General Hospital, D. C., from Fort Oglethorpe, Lieut. W. A. TANSEY, Newark.

To Williamsbridge, N. Y., from Fort Oglethorpe, Lieut. E. W. SMITH, Passaic.

New Mexico

To Fort Leavenworth, Kan., from Fort Riley, Lieut. C. E. KINDALL, Hurley.

New York

To Biltmore, N. C., from Camp Travis, Capt. D. S. CHILDS, Syracuse.

To Boston, Mass., Harvard Graduate School of Medicine, for instruction, from Camp Lee, Lieut. H. F. MORRISON, Tuxedo Park; from Newport News, Lieut. H. T. BLAIR, Brooklyn.

To Camp A. A. Humphreys, Va., from Camp Wheeler, Major L. D. McKEEVER, New York.

To Camp Abraham Eustis, Va., base hospital, from Camp Meade, Lieut. J. GRABENSTEIN, New York.

To Camp Alfred Vail, N. J., from New York, Capt. J. R. FARRELL, New York.

To Camp Beauregard, La., base hospital, from Camp Hancock, Capt. G. PRIESTMAN, Willard; from Camp Wadsworth, Lieut. H. W. KEMP, Brooklyn.

To Camp Crane, Pa., from Camp Dix, Lieut. C. H. BRUSH, Kings Park; from Camp Wheeler, Lieut. J. M. O'NEILL, Flushing.

To Camp Custer, Mich., base hospital, from New York, Lieuts. I. H. PARDEE, A. A. RAYLE, New York.

To Camp Dix, N. J., Lieut. P. B. BREGMAN, New York. Base hospital, from Syracuse, Lieut. B. C. HAMILTON, Goshen.

To Camp Dodge, Iowa, evacuation hospital, from Camp Meade, Capt. W. S. SMITH, Brooklyn; from Fort McHenry, Capts. H. R. CHARLTON, Bronxville; W. S. WOODRUFF, Mount Vernon; from Fort Oglethorpe, Capt. E. K. TANNER, Brooklyn; from the Surgeon-General's Office, Major J. E. JENNINGS, Brooklyn.

To Camp Fremont, Calif., base hospital, from Camp Lewis, Lieut. A. G. DE SANCTIS, New York.

To Camp Gordon, Ga., base hospital, from Camp Wadsworth, Lieut. J. E. NOLL, New York; from Fort Oglethorpe, Lieut. I. E. LISS, New York.

To Camp Greene, N. C., from Garden City, Major A. M. CACCINI, New York. Base hospital, from Camp Lee, Lieut. B. P. BROWN, Brooklyn; from Fort Oglethorpe, Lieut. D. D. KRUPP, Brooklyn.

To Camp Hancock, Ga., evacuation hospital, from Fort McPherson, Lieuts. H. M. BULLARD, Brooklyn; J. F. McGOVERN, New York.

To Camp Jackson, S. C., base hospital, from Fort Oglethorpe, Lieut. P. W. SKLADZIEN, Brooklyn.

To Camp Logan, Texas, base hospital, from Hoboken, Major J. B. CLARK, New York.

To Camp MacArthur, Texas, base hospital, from Fort Oglethorpe, Lieut. G. FREIMAN, Brooklyn.

To Camp McClellan, Ala., evacuation hospital, from Biltmore, N. C., Lieut. O. C. PICKHARDT, New York; from Camp Shelby, Capt. F. PALMER, Glens Falls; from Fort Oglethorpe, Lieut. S. S. ARLUCK.

To Camp Meade, Md., base hospital, Capt. H. N. RATLIFF, New York. *To examine the command* for cardiovascular diseases, from Camp A. A. Humphreys, Lieut. D. SCHULTHEIS, New York.

To Camp Pike, Ark., evacuation hospital, from Camp Travis, Lieut. A. B. DYKMAN, Riverdale.

To Camp Sevier, S. C., base hospital, from Fort Oglethorpe, Capt. J. L. BENDELL, Albany.

To Camp Shelby, Miss., as orthopedic surgeon, from Fort Oglethorpe, Lieut. E. E. VANDERWERKER, New York. Base hospital, from Army Medical School, Lieut. H. A. PATTERSON, Buffalo.

To Camp Sherman, Ala., as orthopedic surgeon, from Fort Oglethorpe, Lieut. L. FASKE, Brooklyn. Base hospital, from Fort Oglethorpe, Lieut. S. S. FRIEDMAN, New York.

To Camp Sherman, Ohio, evacuation hospital, from Camp Custer, Lieut. W. C. HANNON, New York; from Camp Zachary Taylor, Major L. M. KAHN, New York; from Fort Oglethorpe, Capt. A. D. YOUNG, Mayville; from Fort Ontario, Major J. F. WHITE, Port Chester.

To Camp Travis, Texas, as orthopedic surgeon, from Fort Oglethorpe, Capt. D. C. PATERSON, Yonkers.

To Camp Upton, N. Y., from Buffalo, Lieut. W. H. ORDWAY, New York.

To Camp Wadsworth, S. C., from Fort Oglethorpe, Lieut. R. B. ERNEST, Jr., New York. Evacuation hospital, from Camp Sevier, Capt. T. A. KENYON, New York; Lieut. D. V. CATALANO, Staten Island; from Columbus Barracks, Lieut. R. V. M. HADLEY, Collins; from Fort Oglethorpe, Lieut. T. F. BERBEROVICH, New York.

To Camp Wheeler, Ga., from Fort Oglethorpe, Capt. E. W. AYERS, Alfred.

To Fort Douglas, Utah, from Fort Oglethorpe, Lieuts. A. E. GORDIN, S. M. HYMAN, New York.

To Fort Niagara, N. Y., Capt. N. B. FORD, Owasco.

To Fort Oglethorpe, as instructor, Lieut. C. A. WATERS, New York. For instruction, Lieuts. W. O. HILL, Buffalo; J. M. BERNHARD, New York; from Camp Forrest, Lieut. G. C. BARONE, Buffalo.

To Fort Ontario, N. Y., from Fairfield, Ohio, Lieut. S. TRIPLER, New York; from Fort Oglethorpe, Capt. A. F. GRIFFITHS, Brooklyn.

To Fort Riley, base hospital, from Camp Grant, Capt. J. M. KEYES, New York; from Fort Oglethorpe, Lieut. H. OSTROWSKY, New York.

To Fort Sam Houston, Texas, base hospital, from San Antonio, Lieut. R. J. WHARTON, Brooklyn.

To Fort Thomas, Ky., from Camp Upton, Capt. D. R. ROBERT, Brooklyn.

To Garden City, N. Y., from Lonoke, Lieut. P. L. HELMICK, New York; from Mineola, Capt. F. L. SENGER, Brooklyn.

To Hazelwood, N. J., Lieuts. L. A. BINGAMAN, New York; C. E. TUBB, Poughkeepsie. For instruction and on completion *to Camp Sevier, S. C., to examine the troops* for cardiovascular diseases, from Camp Lee, Capt. J. B. ZABRISKIE, Brooklyn.

To Lee Hall, Va., from St. Paul, Capt. R. GRACE, La Grangeville.

To Mineola, N. Y., Hazelhurst Field, from Dayton, Ohio, Capt. G. M. CLOWE, Schenectady. For instruction, from Lee Hall, Capt. E. L. HAZELTINE, Jamestown.

To New York, Academy of Medicine, from Eastern Department, Major W. T. HILMAN, New York.

To report to the commanding general, Panama Canal Department, from Camp Upton, Lieut. M. A. RAMIREZ, New York. Philippine Department, from New York, Major F. J. EISENMAN, New York.

To Rockefeller Institute, Lieut. P. K. OLITSKY, New York.

To Syracuse, N. Y., Capt. MALCOLM CAMPBELL, New York; from Camp Dix, Capt. G. W. BEATTY, Brooklyn.

To Waco, Texas, Rich Field, from Mineola, Lieut. W. E. GAZELEY, Albany.

To Washington, D. C., Surgeon-General's Office, from Syracuse, N. Y., Major C. R. CASTLEN.

Honorably discharged on account of physical disability incurred in line of duty, Lieut. I. C. WHITEHEAD, Hoosick.

North Carolina

To Camp Hancock, Ga., evacuation hospital, from Fort McPherson, Capt. C. T. GRIER, Carthage.

To Camp McClellan, Ala., from Fort Oglethorpe, Capt. C. O. ABERNETHY, Raleigh.

To Camp Sevier, S. C., base hospital, Lieut. J. R. SPENCER, South Mills.

To Fort Jay, N. Y., Capt. M. B. ABERNETHY, Reidsville.

To Fort Oglethorpe, Major E. C. BOYETTE, Charlotte. For instruction, Lieut. R. C. RAY, Beaver Creek.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to Garden City, N. Y.*, Capt. A. W. MOORE, Charlotte.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. H. ROBINSON, Reidsville.

North Dakota

To Camp Joseph E. Johnston, Fla., as orthopedic surgeon, from Fort Oglethorpe, Lieut. L. F. FISHER, Grand Forks.

To Fort Benjamin Harrison, from Camp Zachary Taylor, Lieut. L. G. DUNLAP, Bismarck.

To Fort Riley for instruction, Capt. J. W. COX, Grand Forks.

Ohio

To Camp A. A. Humphreys, Va., from Camp Perry, Lieut. T. WALKUP, Dayton.

To Camp Abraham Eustis, Va., Lieut. F. McLEISH STRATTON, Pioneer.

To Camp Beauregard, La., base hospital, from Camp Joseph E. Johnston, Lieut. C. C. PATTON, Ashland; from Camp Wheeler, Lieut. L. A. OSTER, Cleveland.

To Camp Dodge, Iowa, base hospital, from Fort Oglethorpe, Lieut. E. C. MYLOTT, Cleveland.

To Camp Gordon, Ga., base hospital, from Camp McClellan, Capt. F. W. HITCHINGS, Cleveland; from New York, Lieut. L. R. COURTRIGHT, Dayton.

To Camp Grant, Ill., Lieuts. J. E. SPRINGER, Akron; H. F. BURMAN, Toledo.
To Camp Hancock, Ga., evacuation hospital, from Fort McPherson, Major F. FLETCHER, Columbus.
To Camp Holabird, Md., from Camp Colt, Major R. W. De CROW, Newark.
To Camp Kelly, Texas, from Dayton, Ohio, Capt. M. C. PHILLIPS, Fremont.
To Camp MacArthur, Texas, as orthopedic surgeon, from Fort Oglethorpe, Lieut. E. H. HAYMAN, Murray. Base hospital, Capt. C. S. MANSS, Cincinnati.
To Camp Meade, Md., from Fort Oglethorpe, Lieut. C. R. JOHNSON, Cambridge; from Fort Riley, Capt. E. H. MORGAN, Gallipolis.
To Camp Sevier, S. C., Lieut. H. H. TALBOTT, Steubenville. Base hospital, from Fort Oglethorpe, Capt. H. B. DORNBLASSER, Springfield.
To Camp Upton, N. Y., as orthopedic surgeon, and on completion *to Boston, Mass.*, Harvard Graduate School of Medicine, for instruction, from Fort Oglethorpe, Capt. J. R. TILLOTSON, Delphos.
To Camp Zachary Taylor, Ky., base hospital, from Fort Oglethorpe, Lieut. M. C. HOUSTON, Urbana.
To Fort Oglethorpe for instruction, Lieut. J. D. WENDER, Dayton.
To Fort Snelling, Minn., from Fort Oglethorpe, Lieut. C. R. FISHEL, Thurston.
To Garden City, N. Y., from Lake Charles, La., Lieut. J. G. MARTIN, New Concord.
To Hoboken, N. J., from Camp Perry, Lieut. G. R. WILKINS, Cleveland; from Fort Oglethorpe, Capt. H. J. HERRICK, Hudson.
To West Point, Miss., Payne Field, from Camp Kelly, Lieut. J. M. PUMPHREY, Mount Vernon.
The following have been revoked: *To Army Medical School* for instruction, from Garden City, Lieut. D. M. MacDONALD, Cleveland. *To Camp A. A. Humphreys, Va.*, Capt. F. J. WOOD, Cleveland.

Oklahoma

To Camp Beauregard, La., base hospital, from Camp Logan, Capt. J. H. MAXWELL, Oklahoma City; Lieut. J. B. LEISURE, Watonga.
To Camp Devens, Mass., from Camp Lee, Major W. E. HARRINGTON, Wakita.
To Camp Gordon, Ga., base hospital, from Southern Department, Lieut. W. P. SIMS, Drumright.
To Camp MacArthur, Texas, base hospital, Capt. E. F. DAVIS, Oklahoma City.
To Camp Meade, Md., from Fort Oglethorpe, Lieut. R. A. DOUGLAS, Tulsa.
To Fort Douglas, Utah, from Fort Snelling, Capt. F. M. SANGER, Oklahoma City.
To Hot Springs, Ark., from Camp Pike, Lieut. J. W. PENDLETON, Kingfisher.
To Morrison, Va., from Lee Hall, Lieut. J. R. WALTRIP, Kinta.
To Washington, D. C., St. Elizabeth's Hospital, for intensive training, from Camp Wadsworth, Lieut. R. K. GODDARD, Supply.

Oregon

To Camp Cody, N. M., base hospital, from Fort Oglethorpe, Lieut. F. E. BUTLER, Hot Lake.
To Camp Dodge, Iowa, from Fort Des Moines, Lieut. R. F. JAMES, Portland.
To Camp Fremont, Calif., Lieut. R. E. SCHMIDT, Rainer.
To Camp Hancock, Ga., base hospital, from Fort Oglethorpe, Lieut. J. H. HARNDOBST, Salem.
To Camp Jackson, S. C. base hospital, from Army Medical School, Capt. W. H. NORTON, Portland.

Pennsylvania

To Arcadia, Fla., Carlstrom Field, from Mineola, Lieut. H. F. LANSHE, Allentown.
To Boston, Mass., Harvard Graduate School of Medicine, for instruction, from Camp Lee, Lieut. C. N. SILMAN, Pittsburgh.
To Camp A. A. Humphreys, Va., Capt. S. H. HELLER, Lancaster.
To Camp Abraham Eustis, Va., base hospital, from Camp Lee, Lieuts. A. ROZLOCH, Chester; J. M. STEWART, Marion Center; from Fort Oglethorpe, Capt. J. H. ARNETT, Philadelphia.
To Camp Bowie, Texas, base hospital. Lieut. M. S. ERSNER, Philadelphia.
To Camp Crane, Pa., from Baltimore, Lieut. E. P. DICKINSON, St. Michael.
To Camp Custer, Mich., base hospital, from Camp Dix, Lieut. T. L. McCULLOUGH, Homewood.
To Camp Dix, N. J., Capt. J. M. TIMMONS, West Alexandria.
To Camp Dodge, Iowa, base hospital, from New York, Lieut. C. D. FOX, Cynwood.
To Camp Gordon, Ga., base hospital, from Fort Oglethorpe, Lieut. C. W. McELHANEY, Greensville.
To Camp Greene, N. C., base hospital, from Fort Oglethorpe, Lieut. C. M. THOMAS, Carrick.
To Camp Hancock, Ga., evacuation hospital, from Camp Dix, Capt. G. W. STIMSON, Pittsburgh; from Fort Oglethorpe, Lieut. E. J. STEIN, Lancaster.
To Camp Jackson, S. C., base hospital, Major K. A. EMMERLING, Pittsburgh.
To Camp MacArthur, Texas, base hospital, from Fort Oglethorpe, Lieut. R. J. HAWS, Reading.
To Camp McClellan, Ala., evacuation hospital, from Camp Wheeler, Lieut. C. C. GANS, Chambersburg.
To Camp Pike, Ark., base hospital, from Camp Dix, Major A. J. SMITH, Philadelphia.
To Camp Shelby, Miss., evacuation hospital, from Camp Meade, Capt. H. H. LOTT, Philadelphia.
To Camp Travis, Texas, base hospital, from Fort Bayard, Capt. G. P. PILLING, Philadelphia.
To Camp Wadsworth, S. C., evacuation hospital, from Camp Sevier, Major C. M. LUMAN, Uniontown; Lieut. J. H. HAMILL, Legonier; from Fort Oglethorpe, Lieut. R. H. PEARLMAN, Pittsburgh.
To Camp Wheeler, Ga., evacuation hospital, from Fort McPherson, Lieut. J. LEEDOM, Philadelphia.
To Camp Zachary Taylor, Ky., base hospital, from Camp Pike, Lieut. G. R. LACY, Pittsburgh.
To Cape May, N. J., from Fort McPherson, Capt. S. D. INGHAM, Philadelphia.
To Carlisle, Pa., from Fort Oglethorpe, Capt. N. G. L. SHILLITO, Pittsburgh.
To Fort Douglas, Utah, from Camp Dodge, Capt. H. A. SPANGLER, Carlisle.
To Fort Oglethorpe for instruction, Lieut. O. R. KLINE, Philadelphia. *To examine the command* for nervous and mental diseases, Lieut. W. C. CHANEY, Philadelphia.
To Hoboken, N. J., from Walter Reed General Hospital, Lieut. E. B. SLOTERBECK, Monessen. Base hospital, from Walter Reed General Hospital, Lieut. E. PARDOW, South Fork.
To Lakewood, N. J., Lieut. J. G. FLYNN, Ridgway; from Camp Dix, Capt. J. T. MADDEN, Pittston.
To Mineola, N. Y., for instruction, from Garden City, Lieut. W. C. SMITH, Woodbine. Hazelhurst Field, from Washington, D. C., Capt. G. W. SMELTZ, Markleton.
To New Haven, Conn., Lieut. W. C. JOHNSON, Philadelphia.
To Syracuse, N. Y., from Fort Oglethorpe Lieut. G. R. PRETZ, Lebanon. *To examine the command* for nervous and mental diseases, from Fort Ontario, Lieut. J. E. DWYER, Polk.
To Walter Reed General Hospital, from Fort Oglethorpe, Lieut. W. C. REESE, Wilkes-Barre.
To Washinton, D. C., from Camp Wheeler, Lieut. C. R. HUGHES, Philadelphia. Surgeon General's Office, from Camp A. A. Humphreys, Capt. S. L. GANS, Philadelphia.
To West Point, Miss., Payne Field, from Camp Hancock, Lieut. R. PAINE, Philadelphia.

Porto Rico

To Camp Las Casas, P. R., from Rockefeller Institute, Lieut. L. A. SALIVA, Rio Piedras.

South Carolina

To Camp Beauregard, La., base hospital, from Camp Sheridan, Lieut. M. WEINBERG, Sumter.
To Camp Gordon, Ga., Lieut. M. L. LANFORD, Greer.
To Camp Hancock, Ga., base hospital, from Fort Oglethorpe, Capt. A. P. McELROY, Union.
To Camp Lee, Va., Lieut. L. M. GAGE, Columbia.
To Camp Logan, Texas, from Fort Riley, Lieut. J. H. MILLS, Maynesville.
To Camp Sheridan, Ala., base hospital, from Philadelphia, Lieut. R. N. DAVIS, Troy.
To Fort Oglethorpe for instruction, Capt. S. C. ZEMP, Camden.
To Fort Riley, base hospital, from Fort Oglethorpe, Lieut. R. T. FERGUSON, Gaffney.
To Otisville, N. Y., from New Haven, Capt. H. B. MALONE, Chester.

South Dakota

To Camp Greene, S. C., from Garden City, Lieut. D. D. RABER, Buffalo.
To Camp Meade, Md., from Fort Riley, Capt. H. C. PARSONS, Watertown.
To Fort Benjamin Harrison, Ind., base hospital, Capt. W. J. MAYTUM, Alexandria.

Tennessee

To Biltmore, N. C., from Camp Zachary Taylor, Capt. O. B. CHANDLER, Union City.
To Camp Beauregard, La., from Fort Oglethorpe, Major J. L. ANDREWS, Memphis.
To Camp Custer, Mich., from Ann Arbor, Lieut. G. C. ENGLISH, Mount Pleasant.
To Camp Gordon, Ga., Lieut. F. M. BLANKENSHIP, Hartsville; from Camp Meade, Lieut. C. E. WARDE, Memphis; from Camp Sevier, Capt. F. M. ORR, Nashville.
To Camp Hancock, Ga., base hospital, from Fort Oglethorpe, Lieut. J. A. JAMES, Nashville.
To Camp Joseph E. Johnston, Fla., Capt. J. F. MASSEY, Fountain City.
To Fort Oglethorpe for instruction, Lieut. H. P. CALMOS, Memphis; from Knoxville, Lieut. R. W. PATTERSON, Knoxville.
To Fort Ontario, N. Y., Lieut. D. N. WILLIAMS, Chattanooga; from Fort Oglethorpe, Capt. J. E. Hall, Nashville.
To Fort Riley for instruction. Lieut. W. V. SANFORD, Ripley.
To Jefferson Barracks, Mo., from Camp Gordon, Major G. M. ELLIS, Chattanooga.
To San Antonio, Texas, Kelly Field, as orthopedic surgeon, from Southern Department, Lieut. R. F. PATTERSON, Knoxville.
The following order has been revoked: *To Hoboken, N. J.*, from Camp McClellan, Lieut. R. L. MOTLEY, Jr., Dyersburg.

Texas

To Camp Beauregard, La., base hospital, from Camp Logan, Lieut. F. H. NEWTON, Dallas.
To Camp Dodge, Iowa, evacuation hospital, from Camp Cody, Lieut. E. C. AXTELL, Lipton.
To Camp Grant, Ill., evacuation hospital, from Southern Department, Capt. L. G. AMENT, Victoria.
To Camp Greene, N. C., base hospital, from Fort Oglethorpe, Lieut. A. F. LEACH, Weatherford.
To Camp Logan, Texas, Lieuts. J. P. REED, Port Arthur; J. H. POPE, Tyler; from Fort Riley, Capt. C. W. GRIFFITH, LaPorte.
To Camp MacArthur, Texas, Lieut. C. A. DREUSS, Fort Worth.
To Camp Sevier, S. C., base hospital, from Camp Hancock, Capt. C. B. McGLUMPHY, Galveston.
To Camp Stuart, Va., base hospital, from Army Medical School, Lieut. A. H. NEIGHBORS, Seguin.
To Camp Travis, Texas, from Southern Department, Major E. L. GOAR, Houston.
To Camp Wadsworth, S. C., evacuation hospital, from Camp MacArthur, Capt. H. E. NICHOLSON, Mobertie.
To Camp Wheeler, Ga., base hospital, from Camp Joseph E. Johnston, Lieut. A. S. GRAYDON, Paris.
To Fort Douglas, Utah, from Fort Oglethorpe, Lieut. J. E. McDOWELL, Shamrock.
To Fort Oglethorpe for instruction, Lieuts. D. J. SAUNDERS, Benham; H. B. DuPUY, San Antonio.
To Fort Riley, base hospital, from Camp Meade, Major H. F. CONNALLY, Waco; from Camp Pike, Lieut. H. DONNELL, Rockett.
To Fort Sheridan, Ill., base hospital, from Camp Grant, Capt. C. C. ODOM, Childress.
To Dayton, Ohio, McCook Field, from West Point, Miss., Lieut. F. B. KING, Durango.
To Garden City, N. Y., from Americus, Ga., Lieut. W. F. P'POOL, Sweetwater.

To Hoboken, N. J., from New York, Capt. J. H. SHELTON, Kingsville.

To Lonoke, Ark., Eberts Field, from Camp MacArthur, Lieut. M. SWEARINGEN, Port Arthur.

To Scituate, Mass., from Rockefeller Institute, Lieut. J. D. MARTIN, Call.

To Stithson, Ky., as camp surgeon, from Southern Department, Lieut. F. H. MILLS, Fort Bliss.

The following order has been revoked: *To Hoboken, N. J.*, from Camp Dix, Lieut. H. L. BROWN, Sherman.

Utah

To Camp Cody, N. M., base hospital, Capt. H. P. KIRTLEY, Salt Lake City.

To Camp Gordon, Ga., base hospital, Lieut. U. H. SMITH, Bingham Canyon.

To Camp McClellan, Ala., from Fort Oglethorpe, Lieut. G. J. Field, Salt Lake City.

Vermont

To Montpelier, Vt., as medical aide to the governor of Vermont, Capt. J. H. WOODRUFF, Barre.

To Walter Reed General Hospital, D. C., from Fort Oglethorpe, Lieut. B. E. WHITE, Brattleboro.

Virginia

To Camp A. A. Humphreys, Va., Lieut. R. M. BAKER, Edgehill.

To Camp Crane, Pa., from Fort Oglethorpe, Lieut. E. R. FERGUSON, Roanoke.

To Camp MacArthur, Texas, base hospital, from Fort Oglethorpe, Capt. E. L. FLANAGAN, Richmond.

To Camp Sevier, S. C., Lieut. G. C. ANDES, Timberville.

The following orders have been revoked: *To Camp Dix, N. J.*, Lieut. R. H. BROCKWELL, Barnette. *To Newport News, Va.*, Lieut. J. L. WRIGHT, Charlotteville.

Washington

To Camp Beauregard, La., base hospital, from Camp Sheridan, Lieut. E. R. BUSH, Fort Canby.

To Camp Custer, Mich., base hospital, from Hoboken, Lieut. W. H. BOONE, North Yakima.

To Camp Fremont, Calif., Lieut. T. D. BURGER, Spokane; from Western Department, Lieut. A. SHAW, Anacortes. Base hospital, from Camp Lewis, Capt. A. C. STEWART, Fort Steilacoom.

To Camp Kearney, Calif., Lieut. C. B. PASCOE, Tacoma.

To Camp Logan, Texas, from Fort Riley, Lieut. W. A. MITCHELL, Colfax.

To Camp Sheridan, Ala., from Fort Riley, Lieut. C. E. GREASON, Laconner.

To report to the commanding general, Panama Canal Department, Lieut. J. P. KANE, Tacoma.

To San Francisco, Calif., Letterman General Hospital, from Camp Fremont, Lieut. M. W. BRACHVOGEL, Montesano.

West Virginia

To Camp A. A. Humphreys, Va., from Washington, D. C., Lieut. D. T. WILLIAMS, Martinsburg.

To Camp Dix, N. J., Lieut. J. B. GROVE, Petersburg.

To Camp Dodge, Iowa, evacuation hospital, from Camp Pike, Lieut. O. P. CHAPMAN, Holden.

To Camp Greene, N. C., evacuation hospital, from Camp Hancock, Capt. K. C. PRICHARD, Huntington.

To Camp Joseph E. Johnston, Fla., Capts. O. S. HARE, Bluefield; W. H. WILSON, St. Albans.

To Camp Sevier, S. C., Lieut. W. C. Camp, Grandeeville.

To Camp Wheeler, Ga., evacuation hospital, from Camp Gordon, Lieut. B. B. THAW, Sisterville.

To Charleston, W. Va., as medical aide to the governor of West Virginia, from Fort Oglethorpe, Lieut. G. C. ROBERTSON, Spencer.

To Fort Oglethorpe for instruction, Lieut. B. C. WIRE, Hurley.

To Garden City, N. Y., from Mineola, Lieut. W. F. SHIRKEY, Ja., Charleston.

Wisconsin

To Camp Custer, Mich., base hospital, from Camp Greene, Lieut. E. A. GATTERDAM, Wauwatosa.

To Camp Hancock, Ga., as orthopedic surgeon, from Fort Oglethorpe, Capt. E. E. BOLTON, Chilton.

To Camp MacArthur, Texas, as orthopedic surgeon, from Fort Oglethorpe, Lieut. J. D. GILLIS, Wauwatosa.

To Camp Sherman, Ohio, evacuation hospital, from Camp Zachary Taylor, Lieut. A. J. LOOZE, Brodhead.

To Camp Travis, Texas, from Southern Department, Lieut. O. F. PARTRIDGE, Mattoon.

To Fort Benjamin Harrison, as orthopedic surgeon, from Central Department, Lieut. J. E. BENTLEY, Portage.

To Morrison, Va., from Lee Hall, Lieut. J. D. NELSON, Milwaukee.

Wyoming

To Camp Dodge, Iowa, as assistant to camp surgeon, from Western Department, Lieut. F. H. SPARRENBERGER, Fort Yellowstone.

To Fort Leavenworth, Kan., from Fort Riley, Capt. C. A. CONYERS, Buffalo.

To Fort Riley, base hospital, from Camp Kearney, Lieut. H. M. BROWN, Sheridan.

To Garden City, N. Y., from Mineola, Lieut. E. R. VAN COTT, Diamondville.

ORDERS TO OFFICERS OF THE UNITED STATES PUBLIC HEALTH SERVICE

Surg. J. W. KERR, to proceed to New Mexico to make a study of public health organization and administration.

P. A. Surg. F. A. CARMELIA, proceed to Petersburg, Va., for temporary duty.

P. A. Surg. J. S. BOLTEN, relieved at Jackson, Miss., proceed to Washington, D. C., preliminary to duty at the Angel Island Quarantine Station.

P. A. Surg. A. R. SWEENEY, proceed to Fayetteville, N. C., and assume charge of service operations at that place.

P. A. Surg. C. E. WALLER, proceed to Raleigh, N. C., and assume charge of service operations at that place.

Asst. Surg. L. L. WILLIAMS, Ja., relieved at Millington, Tenn., proceed to Charleston, S. C., for duty.

Asst. Surg. CHARLES ARMSTRONG, relieved from duty on coast guard cutter *Seneca*. Report to the bureau for orders.

Asst. Surg. M. V. ZIEGLER, proceed to Charleston, S. C., to investigate an outbreak of meningitis.

Asst. Surg. F. B. ROSS, proceed to Chamberlain, S. D., to investigate typhoid epidemic.

Asst. Surg. C. W. MITCHELL, relieved at Ellis Isand, N. Y., proceed to the Marine Hospital, Stapleton, N. Y., for duty.

A. A. Surg. SAMUEL L. HUTCHINSON, proceed to Alexandria, La., for duty in extracantonment sanitation.

A. A. Surg. W. B. PARKER, proceed to Chattanooga, Tenn., for duty in extracantonment sanitation.

San. Eng. J. K. HOSKINS, relieved at Macon, Ga., proceed to Columbus, Ga., and assume temporary charge of extracantonment sanitation.

San. Eng. H. W. STREETER, proceed to Florence, Ala., for conference relative to Sheffield water problem.

Scien. Asst. W. H. BOLTEN, proceed to Jacksonville, Fla., for duty in extracantonment sanitation.

Scien. Asst. WALLACE PURRINGTON, relieved at Portsmouth, N. H., proceed to New London, Conn., for duty in extracantonment sanitation.

Scien. Asst. W. L. WOOD directed to make an investigation of conditions at various points in the state of Virginia to ascertain the probable effect on the health of the military forces.

San. Insp. JOHN F. GORDON, proceed to Portsmouth, N. H., for duty in extracantonment sanitation.

San. Insp. ROBERT SERUNTINE, relieved at Atlanta, Ga., proceed to Pensacola, Fla., for duty in extracantonment sanitation.

San. Insp. R. C. SIMPSON, proceed to Newport News, Va., for duty in extracantonment sanitation.

Microscopist GETHYN B. RUGAN, proceed to Wilmington, N. C., for duty in malarial investigations.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ARIZONA

Funds for Y. M. C. A.—Dr. S. E. Lynd, associate manager of the Phoenix, Y. M. C. A., convened a meeting at Flagstaff, September 12, for the purpose of raising the sum of $110,000—Arizona's quota for the support of the Y. M. C. A. abroad.

Cooperation in Health Matters.—To cooperate with the state health authorities in Arizona, Dr. Frederick T. Fahlen, St. Louis, has been appointed acting assistant surgeon of the United States Public Health Service for Arizona. Dr. Orville H. Brown, Phoenix, new state superintendent of public health who succeeded Dr. William O. Sweek, will cooperate with the United States Public Health Service representative in the expenditure of the appropriation for the control of venereal disease.

ARKANSAS

Physicians Meet.—The District Medical Association met at Portsmouth, September 15. Dr. Harry C. King, Fort Smith, conducted a surgical clinic at Sparks Memorial Hospital.

Free Clinic.—At Fort Smith a free clinic was opened, August 20, at which special attention is to be given to the welfare of children. Drs. James A. Foltz, Dred R. Dorente and Irving Sternberg are in charge.

Personal.—Dr. J. C. Geiger, formerly in charge of the United States Public Health Service work in Lonoke, has succeeded Captain Weldon in charge of the work of the Little Rock district. Dr. Geiger is an expert on sanitary conditions in rice field districts.——Dr. St. Cloud Cooper, Fort Smith, has resigned as a member of the state board of health.——Dr. William M. Burns, Argenta, has been appointed food administrator of North Little Rock.

CONNECTICUT

Personal.—Dr. Henry F. Moore, superintendent of health of Hartford, has obtained leave of absence to go to England to engage in war work.——Dr. Stewart W. Reid has been appointed police surgeon of Hartford.

DISTRICT OF COLUMBIA

Additional Personnel for Medical and Dental Inspection of Schools.—The new appropriation act for the District of Columbia considerably enlarges the force of medical and dental inspectors of public schools, increases the number of school nurses, and provides for four dental clinics in the pub-

lic schools to be served by eight dental operators, who shall be half-time dentists at $700 per annum, and four prophylactic operators, who shall be graduate nurses trained in the inspection and cleaning of teeth; these last are to be full-time employees at $900 per annum. The number of medical inspectors is increased by one, and of dental inspectors by two, making the new numbers twelve and four, respectively. There are to be three additional school nurses—ten in all—at $1,000 per annum.

Escape of Leper.—John R. Early the leper and ex-soldier who has acquired nation-wide notoriety and occasioned interstate complications by his tendency to wanderlust, is once more at large, having escaped from his cottage by sawing through the iron bars which guarded the window of his room. That his liberty will be short lived may be assumed as the police authorities are vigorously on his trail. This escape from quarantine is the fourth excursion of the kind during four years. Once he found his way to the Pacific Coast, having been unrestricted in his movements for several months. When apprehended a lively dispute arose regarding the responsibility for his care; he was finally sent back to Washington, however, apparently on the ground that having been so indiscreet as to make the diagnosis the District authorities would have to bear the consequences.

Municipal Tuberculosis Dispensary Opened.—The past fortnight saw the inauguration of a new municipal social service work in the opening of the District of Columbia Tuberculosis Dispensary. The dispensary will be in charge of Dr. W. D. Tewksbury, who will have as assistants, Drs. Everett M. Ellison and Thomas Miller. A liberal appropriation was granted by Congress for this project and, while not yet complete, the equipment of the plant will be modern and ample. The roentgenologist in charge will be Dr. W. H. Merrill. The new dispensary will replace the outpatient work heretofore conducted under the auspices of the Association for the Prevention of Tuberculosis and will serve as the obviously necessary supplement to the excellent Municipal Tuberculosis Hospital. Later there will be established in the same building a social hygiene clinic, the chief of this service being Dr. Harry A. Fowler; Dr. William G. Young will be the second in command.

Personal.—Drs. A. L. Stavely and V. B. Jackson, both of whom have been ill and have undergone surgical operations of some magnitude, have recovered. Dr. Jackson is again actively at work, while Dr. Stavely has gone away for a vacation.——Dr. W. S. Bowen has recently recovered from an illness and has gone away for a much needed rest.——Dr. Harry S. Bernton, recently bacteriologist of the state board of health of Rhode Island, has been appointed chief of the bureau of preventive diseases and director of the bacteriologic and serologic laboratories of the health department of the District of Columbia. As chief of the contagious disease service, Dr. Bernton succeeds Dr. William C. Fowler, who became health officer following Dr. William C. Woodward's departure to Boston, and as director of the laboratories, he succeeds Dr. J. J. Kinyoun, who as major, M. R. C., is doing epidemiologic work for the Army.——Dr. E. W. Titus has been made deputy coroner, a post recently vacated by Dr. W. Browne Carr, now in the Army medical service.

ILLINOIS

Poliomyelitis.—A second case of infantile paralysis within a week was brought to the attention of health officers of Evanston, September 16.——One new case of poliomyelitis was reported, September 13, at DeKalb, making five cases under treatment at that time. Serum was being used in the treatment. The same date seven cases of scarlet fever were in quarantine.

Quarantine for Venereal Disease.—At Camp Grant, September 20, an order was issued by Col. H. C. Hagadorn, camp commander, that all men with venereal disease will be quarantined in special camps, two of which have been provided for colored men and one for white men. There are said to be between 1,000 and 1,200 men afflicted with venereal disease in the camp. Practically all these cases are in recently inducted men.

Personal.—Dr. Carl E. Black, Jacksonville; has been appointed a member of the Greek commission in charge of the surgical department and will sail soon.——Dr. Clarence H. Boswell, Rockford, has been reappointed county physician with the understanding that his contract is to be cancelled when he is called into military service.——Dr. Albert E. Campbell, Chicago, has been appointed district health officer of Springfield. He was formerly surgeon to the Illinois Central Railroad.

Illegal Practitioners Fined.—J. W. Schuppacher of Edwardsville, Madison County, was arrested by the Illinois Department of Registration and Education for practicing medicine without a license. The court assessed a fine against him of $100 and costs, amounting to $128.20. Joseph Zientek of 2610 Milwaukee Avenue, Chicago, was also arrested by the Illinois Department of Registration and Education for practicing medicine without a license and was fined $25 and costs by the municipal court of Chicago.

Influenza.—In addition to the large number of cases of influenza in the Great Lakes Training Station, there are many cases in the civil population in towns along the lake. September 17, 150 cases were reported at Lake Forest and 200 at Waukegan. The Army students at Fort Sheridan and all men in the Great Lakes Aviation Camp, in addition to the 50,000 men in the Naval Training Station, have been placed under quarantine. September 20, it is reported that the epidemic at the Great Lakes was on the wane, and it was expected that there would be a decrease in the number of cases daily.

To Treat Returned Tuberculous Soldiers.—A movement has been started at East St. Louis which has the support of the County Medical Society as well as the State Medical Society and the Illinois Tuberculosis Association through its president, Dr. George T. Palmer, Springfield, to provide appropriate and continuous care for soldiers returned from the front or from the army camps on account of tuberculosis. It is said that over 1,200 have been returned up to this time. Work in St. Clair County at East St. Louis is under the direction of Dr. Charles W. Lillie, county medical director. Similar work is to be undertaken in the other counties.

Correction of Remediable Defects in Registrants.—A plan has been worked out by the War Committee of the Illinois State Medical Society by which registrants who have been placed in Group 1, Class B, on account of remediable defects, may be provided gratuitous surgical and hospital aid in having their defects remedied. This plan, together with a list of competent and trustworthy physicians and surgeons, and a list of hospitals that will care for such registrants, has been presented to Major John M. Dodson, medical aide to the governor, and through these channels the adjutant-general of the state has been led to issue to the chairman of each local board the formal offer of the physicians and hospitals to provide such service to registrants with remediable defects, together with a list of the hospitals and surgeons in the territory most convenient to any particular registration district. Accompanying these lists, which will be added to from time to time, are blanks on which the postponed registrant is invited by the local board to have his defect remedied, giving him a list of physicians and surgeons in his neighborhood who have made the offer of gratuitous service, a blank on which the registrant accepts the offer and selects the surgeon and hospital, a blank to be furnished the registrant addressed to the surgeon selected and one to the hospital selected. The registrant is given to understand that he need not accept the services of any of the surgeons named, but may employ one of his own choice. It is also provided that hospitals which cannot accept registrants for free treatment shall notify the local board of such fact and give their minimum charge for taking care of the registrant, so that the local board may arrange for the payment of such charges through some organization seeking to aid the government. Due publicity is to be given in the neighborhood of the circumstance of the registrant being willing to have his defect remedied that he may enter the service, so that he may be given credit for his patriotism, and also to encourage others to have their physical defects remedied.

INDIANA

Anesthetists to Meet.—The fourth annual meeting of the Interstate Association of Anesthetists was held in Indianapolis, September 25 to 27, at the Claypool Hotel. Dr. E. H. Embley of Melbourne, Australia, and Dr. James Cotton of Toronto, Canada, attended the meeting.

Returned Home on Acount of Tuberculosis.—September 16, the Indiana Society for the Prevention of Tuberculosis received notice of the return of 161 Indiana boys who have been discharged from the Army on account of tuberculosis. This makes a total of 565 discharged from the Army on account of this disease.

Quarantine for Venereal Disease.—An ordinance recently passed by the Indianapolis City Council in the interest of the eradication of venereal disease became effective, September 2. All such cases must be reported and the afflicted person

must obtain treatment from a licensed physician and undergo detention in his own home.

Scholarship Provided by Will.—The will of Dr. Nikodem G. Borisowiez, South Bend, provides for a scholarship for a Polish student with a high school education at the Polish National Alliance College at Cambridge Springs, Pa., for the acquisition of an education in a civil profession. A committee is named to administer the trust.

Indiana Physician Receives Military Cross.—Under date of August 19 a list of Army orders by Gen. Sir Herbert Plumer announces the award of the military cross to Lieut. Glenn D. Ransom, M. C., U. S. Army, attached to the 5th Battalion of the Cameron Highlanders. Lieutenant Ransom resided in Hamilton, Ind., before entering the service.

Influenza Survey.—Dr. John N. Hurty, secretary of the state board of health, has ordered a survey of the state to ascertain how prevalent is the influenza. He has sent inspectors of the state board to visit Indianapolis factories engaged in war production and has asked the county health officers of the different cities in the state to report to him.

Addition to Antituberculosis Camp.—Mr. John W. Boehne, ex-mayor of Evansville, has contributed money to erect a new addition to the Boehne Antituberculosis Camp, near Evansville. The addition will cost about $12,000 and will be used for the returned soldiers who are suffering from the white plague, twenty of these now being in Vanderburg County. The new addition will accommodate from forty to sixty soldiers.

County Tuberculosis Hospital.—It has been announced that a board of county commissioners has full power to establish a county tuberculosis hospital without first submitting the question to the voters of the county or without the board being petitioned to establish such a hospital. However, if a board should refuse to establish such a hospital, the citizens, by means of a petition signed by 200 freeholders and an election, can force it to do so if the majority of the voters are in favor of it.

For a Joint County Tuberculosis Sanatorium.—A campaign is being conducted by the Indiana Society for the Prevention of Tuberculosis to secure the vote of the electors at the November election for a tuberculosis sanatorium for four counties, Noble, DeKalb, Steuben and La Grange. At the Kendallville fair, a headquarter tent was maintained and the campaign carried on by means of lectures, literature and personal solicitation. Similar work is being carried on in other districts of the state. In Marion County a full-time teacher, hired for the purpose, will give regular instructions in measures to prevent tuberculosis in all public schools.

IOWA

State News.—At Vinton the main building of Tilford Academy has been sold to the city for a hospital for $50,000, which sum has been left by the will of Miss Virginia Gay to establish a hospital in her name.——At Fort Dodge, the Eleanor Moore Hospital, given by Hon. S. L. Moore, who kept up the yearly financial deficit, is about to be closed on account of the scarcity of physicians. Unless Mr. Moore can make some other arrangements, the hospital will be closed until after the war.——The sum of $24,000 has been alloted to Iowa, a part of the $1,000,000 federal appropriation for the control of venereal disease. This expenditure will be under the supervision of the state board of health.——At Clinton, September 18, eight cases of infantile paralysis were under quarantine.

MAINE

State News.—The state department of health is now carrying on, in cooperation with the government authorities, important sanitary and disease prevention measures in the Portsmouth-Kittery Civil Sanitary District and Bath, in connection with the shipbuilding industry in which there are engaged several thousand workmen. Dr. Paul Treble of the U. S. P. H. S. has been placed in charge of the district on the recommendation of Dr. Leverett D. Bristol, state commissioner of health.——In the venereal disease campaign, Dr. Harry E. Hitchcock, formerly district health officer for the northern part of Maine, has been placed in charge.——According to the report of the state board of health during last month, 390 children were born in the state who had not been named at the time the reports were sent in. This omission makes the certificates worthless to the individual for establishing the date of his birth. During the time named there were 1,062 births. This shows that about one third were improperly reported.

MARYLAND

Infantile Paralysis.—An additional case of infantile paralysis occurred in southwest Baltimore, September 17, in a white baby 5 months old. Thirty cases have been reported in Baltimore since March 30.

Meetings.—The Baltimore County Medical Association held its monthly meeting at the base hospital at Camp Meade as the guests of Lieut.-Col. Lloyd A. Kefauver, Manila, P. I., and the medical officers, September 18. Following the medical meeting, supper was served at the camp.

Personal.—Major J. Albert Chatard, Baltimore, who, prior to his departure for Italy, was head of the medical service at the U. S. Army General Hospital No. 2 at Fort McHenry, Baltimore, has arrived overseas.——According to a cable dispatch, Capt. Harry W. Maxson of Baltimore, who was captured by the Germans last February, is now interned in the officers' camp at Rastatt, Baden.——Dr. Walter L. Denny of Baltimore has resigned as a member of the board of police surgeons to enter military service. Dr. Denny has been engaged in government medical work for the past year.——Dr. John D. Fiske, official physician to members of the crews of foreign vessels, who has been ill at Johns Hopkins Hospital, is now convalescent.——Dr. John M. T. Finney, surgeon in chief of the American Expeditionary Forces, on his recent visit to the United States laid plans before the president for the establishment of hospitals for the treatment of shell shock. The necessary funds have been provided and Dr. Finney has returned to France, where he has made a special study of shell-shock cases.

NEW YORK

Memorial Wing for Peekskill Hospital.—A fund is being raised to build a memorial wing to the Peekskill Hospital in memory of the seven volunteer firemen killed recently in the Fleischman Plant at Peekskill. Thus far $12,000 has been subscribed.

Medical Meeting Postponed.—A meeting of the Medical Association of Central New York, which was scheduled to take place October 17, has been abandoned on account of the absence of many members at the front. The next meeting will be held in 1919. Dr. John J. Buettner, Syracuse, is president, Dr. Robert Burns, Syracuse, secretary, and Dr. Thomas F. Laurie, Syracuse, treasurer.

New York City

Personal.—Dr. Abraham Jacobi's summer home at Lake George was destroyed by fire on the night of September 20. Dr. Jacobi, whose sleeping apartments were cut off from the rest of the building by the flames, had a narrow escape, but suffered from nothing more serious than shock and a few bruises. A valuable collection of historical antiques was destroyed.

New York Academy of Medicine.—The first meeting of the New York Academy of Medicine for the season 1918-1919 will be held, Thursday evening, October 3, at 9 o'clock. At that time Prof. Graham Lusk, one of the representatives at the recent meeting of the Interallied Scientific Food Commission abroad, will deliver the Wesley M. Carpenter lecture, his subject being "The Scientific Aspect of the Interallied Food Situation."

Raising Funds for Hospital.—The women physicians of the New York Infirmary for Women and Children have started a campaign to raise $200,000 for this institution. Dr. S. Josephine Baker is chairman of the campaign committee of 400 volunteer workers. Others active in the effort to reinstate this institution are Dr. Anna Howard Shaw, Dr. Alice E. Wakefield, Dr. Louis D. Ray and Dr. William Emmet Cuff, all of New York City.

More Women Doctors Sail for France.—The second unit of the American Women's Hospitals, which is to be added to the staff of the military hospital directed by Dr. Barbara Hunt, Bangor, Me., at present working with the Sixth Army Corps in cooperation with the American Committee for Devastated France, has sailed. The unit includes the following: Drs. Caroline M. Purnell, Philadelphia; Mary L. Evans, Middletown, Conn.; Charlotte Fairbanks, St. Johnsbury, Vt.; M. Ethel V. Fraser, Denver; Mary MacLachlan, Portland, Ore., and Ier Jay Manwaring, Norwich, Conn. Dr. Purnell is special commissioner for the American Women's Hospitals in France.

The Influenza Situation in New York.—According to a statement made by the health department, September 20, there

were at that time about 450 cases of influenza in the greater city. Health Commissioner Copeland expresses the opinion that the disease is not getting away from the control of the health department, but is decreasing. Citizens who have contracted the disease are quarantined and the health department is prepared to compel patients who may be so situated as to be a menace to the community to go into hospitals. The bacteriologists of the department of health find Pfeiffer's bacillus in a large percentage of the cases, and, in addition, a minute organism, as yet unidentified. In order to better control the spread of influenza the health board at its regular meeting, September 17, placed pneumonia and influenza on the list of diseases that must be reported by all physicians.

Change in Administrative Methods in Health Department.—Certain changes in the administrative system of the New York Department of Health are to go into effect, October 1, having for their purpose the coordination of the work of the department and the granting of autonomy to the boroughs. The chief officer in each borough, known as the assistant sanitary superintendent, will become the head of that borough. There will be attached to each of the boroughs, as at the present time, a representative of each of the bureaus of the department requiring field representatives. All the employees in a given borough will be under the direction, supervision and control of the assistant sanitary superintendent, though it is understood that, except in cases of emergency, each employee assigned to a borough office for the work of a given bureau will not be taken from that particular work without orders from the commissioner's office. Questions of policy, exceptional conditions, and changes in personnel will be brought to the personal attention of the commissioner, who will make final decisions in cases of disagreement between the sanitary superintendent and the head of any borough. It has been the belief of those directly interested in the administration of health department work that in a city as large as Greater New York the borough office should have greater authority in the administration of local affairs, since in this way there could be personal contact with an actual knowledge of local conditions impossible under the centralized bureau system, and especially impossible under the triple headed district now in force. The change will overcome these objections. The more minute details of the new plan have not yet been made public.

OHIO

State Meeting Abandoned.—The meeting of the State Medical Association, which was to be held at Columbus, October 1-3, has been abandoned on account of war conditions and the demands on the medical profession.

PENNSYLVANIA

Urge Better Medical Care.—According to a preliminary report submitted to the state health insurance commission by its investigating staff, there is an average loss of 8,400,000 working days a year in Pennsylvania. It is also asserted that a large number of the serious illnesses appear to be due to the lack of medical care for minor ailments; that present facilities for medical care of employees are not satisfactory and that a study of a typical working class district in Kensington, Philadelphia, showed that more than half of the illnesses were those of wage earners and that each sick worker lost an average of thirty-nine days' time and almost $80 in wages. Recommendations for reducing this waste of industrial forces will be placed before the legislature next January.

Philadelphia

Influenza Made Reportable Disease.—September 21, the board of health made "Spanish" influenza a reportable disease in order to bring it under immediate control among the civilian population. All physicians are called on to report cases and to isolate every patient.

Gift to the Blind Fund.—The biggest individual subscription in the campaign to raise $150,000 for the Pennsylvania Working Home for Blind Men was announced, September 19. It was $10,000 and was given anonymously with the stipulation that an additional $90,000 be collected before the end of the campaign. Up to September 19, $61,000 had been collected.

Personal.—Dr. Cornelius T. McCarthy, now a first lieutenant in the United States Army Medical Corps attached to the British army, has been awarded the British military cross for the second time.——Dr. Samuel L. Baron has been made assistant school medical inspector, bureau of health, with a salary of $600.——Dr. Edwin S. Darby, who resigned from the dental department of the University of Pennsylvania a year ago, after more than thirty years of service, has returned to the institution at the request of the faculty and board of trustees.

Meeting of Babies' Welfare Association.—The Babies' Welfare Association held a meeting in the red room of the Bellevue-Stratford, Monday evening, September 23. The program follows: Neva R. Deardorff, Ph.D., American Red Cross, Washington, D. C.: "Birth Registration—A National Service"; Dorothy Reed Mendenhall, M.D., University of Wisconsin, representing the Federal Children's Bureau, Washington, D. C.: "The Reduction of Maternal Mortality"; John M. Baldy, M.D., president, Bureau of Medical Education and Licensure, Commonwealth of Pennsylvania: "The Demands of War-Time Obstetrics."

Medical College Reopens.—The Women's Medical College of Pennsylvania opened its sixty-ninth session, September 24. Dr. Martha Tracy, dean of the college, made the introductory remarks, and Dr. Eleanor C. Jones, professor of pediatrics, delivered the principal address. Announcement was made at the request of the government that a course for laboratory technicians had been added to the curriculum requiring seven months' study to complete it. Graduates in this course will be ranked as apprentice technicians in military hospitals. A high school education and a knowledge of chemistry and biology are necessary for matriculation. Seventy-five students were enrolled.

State Society Meeting.—The Medical Society of the State of Pennsylvania held its fifty-ninth session in Philadelphia at the Bellevue-Stratford Hotel, September 24 to 26, inclusive. General meetings were held Tuesday and Wednesday mornings and Thursday afternoon; specialty sessions, Tuesday and Wednesday afternoons and Thursday morning. Tuesday evening, a patriotic meeting was held in the ball room, and Wednesday evening, a reception for the president and officers of the society. Thursday evening, there were moving pictures of war activties and music. A meeting and supper of the secretaries of the component county society was held Tuesday evening at Kugler's. The commercial exhibit was open every day at the Bellevue-Stratford.

CANADA

Infantile Paralysis.—Infantile paralysis has broken out in Manitoba necessitating the closing of several schools, churches and moving picture theaters.

Spanish Influenza.—This new and stylish disease, if it is any other than our old friend the grip in a new dress, has appeared in various parts of Ontario, particulary in the Polish military camp at Niagara-on-the-Lake. Col. John W. S. McCullough, Toronto, the chief medical officer of health for Ontario, is sending an official circular to physicians throughout the province on the subject.

Personal.—Lieut.-Col. Ernest Raymond Selby, Calgary, Alta., a graduate in medicine, University of Toronto, 1910, who has seen prolonged service in the C. A. M. C., is reported wounded. Originally a captain with No. 2 Canadian Hospital, he was also attached to the First Casualty Clearing Station, and made M. O. 43d Battalion. He was mentioned in dispatches in June last.——Dr. James M. Johnston, Toronto, convicted last March of performing an illegal operation, has been sentenced for two years less one day at the Burwash Prison Farm, North Ontario. Dr. Johnston is 63 years of age, practiced in Toronto more than thirty years, and from real estate holdings in Toronto is possessed of an annual income of $20,000. His counsel is endeavoring to secure his pardon from the minister of justice. In the meantime he will be assigned to medical duties at the prison farm.

GENERAL

Prevention of Epidemic Influenza.—The rapid spread of the pandemic of influenza has led to the issuance by the Surgeon-General of the Public Health Service of a circular letter addressed to the medical officers in each of the United States quarantine stations with reference to the prevention of the introduction into the country on vessels of the disease referred to as "Spanish influenza." A short description of the disease is given and the methods for its control and treatment summarized in *Public Health Reports*, Sept. 13, 1918.

Board on Excreta Disposal.—The Surgeon-General of the Public Health Service has created a board to make a general study of the question of sewage and excreta disposal. This board consists of C. W. Stiles, U. S. P. H. S., chairman; Prof. E. B. Phelps, U. S. P. H. S.; L. L. Lumsden, U. S.

P. H. S.; Prof. G. C. Whipple, of Harvard; W. S. Rankin, of Raleigh, N. C.; Col. V. C. Vaughan, M. C., U. S. Army, of Ann Arbor, and Prof. E. O. Jordan, University of Chicago. It will undertake an extensive study of small sewage units, such as the isolated farmhouse, small hotels, etc. The headquarters will be at Wilmington, S. C., with extensive laboratories and experimental facilities.

Regulations for Allotment of Venereal Disease Funds.—*Public Health Reports*, Sept. 13, 1918, contains the regulations promulgated by the Secretary of the Treasury under which state boards or state departments of health receive an allotment of funds appropriated by an act of Congress, approved July 9, 1918. This act provides that a million dollars shall be distributed to the states for the use of their respective boards or departments of health in the prevention, control and treatment of venereal diseases. The fund is to be distributed to the states in the proportion which the population of each bears to the population of the continental United States, according to the last census, exclusive of Alaska and the Canal Zone. The regulations under which this fund is distributed are fully set forth. The assistance of the United States Public Health Service is made available to state organizations in this work.

Government Desires Platinum.—The chief of the Section of Medical Industry of the War Industries Board has issued an appeal to every one, including especially physicians and dentists, that on account of the scarcity of platinum and the great need of that metal for war purposes, each should go over his instruments and pick out every scrap of platinum that is not absolutely essential for his work. These scraps, however small, should reach government sources either through accredited representatives of the Red Cross, who will make a canvass for the purpose of collecting the platinum, or through any bank under the supervision of the Federal Reserve Board. Current prices will be paid for the metal. A warning is issued against giving scrap platinum to any one not authorized to represent the Red Cross. Platinum absolutely required for dental and surgical instruments and purposes will be released from time to time.

FOREIGN

Spanish Medical Party Visits French Fighting Front.—The Spanish government appropriated 30,000 pesetas to pay the expenses of a party sent to study on the spot the progress realized during the war in the treatment of wounds. The party is in charge of Dr. R. Molla, professor at the University of Madrid, and includes one licentiate from the medical department of each of the ten universities of Spain. The term "licentiate" is applied to those who have finished the curriculum but have not yet received the doctor's degree. The one representing the University of Valencia is a young woman.

Campaign Against Birth Control.—A national association has been organized in the Netherlands to combat the new malthusianism. Dr. H. Pinkhof, one of the editorial writers of the *Nederlandsch Tijdschrift*, is the president. A two-day congress is planned for December, to be held at Utrecht, and eight addresses are to be presented. The meeting is open to any one on payment of the free of 2.50 florins which entitles one to take part in the discussions, vote and receive a copy of the transactions. The four sittings are open also to others interested on payment of 1 florin. Dr. Pinkhof's address is Plantage Franschelaan 11, Bijkantoor Prins Hendrikkade, Amsterdam. The name of the association is the Vereeniging tot bestrijding van het Nieuw-Malthusianisme.

Hospital Fare in Germany.—The *Nederlandsch Tijdschrift* quotes an article in the *Deutsche medizinische Wochenschrift* by Professor Hoeflmayer of Munich in which he protests against the investigating committee which visits the hospitals and interrogates patients and others, seeking to discover among the inmates some who without being sick, feign illness and stay in the hospitals in order to get better food to eat. He comments on the injury done the sick by these searching examinations, and the lack of confidence in the hospital physicians which they display. "Even if one physician should connive at such practices," he says, "they could not be carried out without the participation of the other medical attendants. It would be better if the physician suspected were given a chance to defend his diagnosis before the board of control. This would facilitate matters for all hands, while a physician who might not be acting in good faith would not dare to risk conviction for perjury."

PARIS LETTER

PARIS, Aug. 22, 1918.

Call for the Class of 1920

Legislation has been passed calling the class of 1920 (young men 18 years of age) to the colors. The minister of war has sent instructions to the prefects and the commanders in chief of the various regions that the most rigid medical examinations should be made in selecting men from this contingent. The medical examiners will be required to be as rigid in the examination of these young recruits as they are in the case of volunteers. They must not accept either for full or limited service men who are not physically sound, but they can postpone or temporarily exempt those who, without being the victims of a characteristic organic disturbance, nevertheless have a weak physique, with a general make-up and antecedents which predispose to tuberculosis. Only those men should be accepted who are sound physically, strong and robust, presenting physical attributes clearly adequate for service. A selection which sacrifices the quality of the recruits for numbers defeats the object sought. The development of diseases of all kinds and of epidemics is favored, besides needlessly exposing the men already in service. Hence, a most careful selection of new recruits is of first importance. In fact, it is an absolute necessity in the interests both of the army as well as of the country.

Personal

Dr. Pierre Delbet, clinical professor of surgery in the Medical Faculty of Paris, has been made commander in the Legion of Honor. The citation recalled his fame as a surgeon, known the world over, and that at the beginning of the war he placed his services at the disposition of the minister of war, without reservation. He has carried to a successful conclusion a number of missions which have had a most favorable influence on the treatment of the wounded. He is the originator of a new method of treating fractures which has yielded excellent results.

Dr. Hartmann, professor of clinical surgery, and Dr. Jean-Louis Faure, professeur agrégé, both of the Medical Faculty of Paris, have been named officers in the Legion of Honor.

Team Work Between the Surgeons at the Front and in the Interior

An important conference was held recently at the Ecole d'application de médecine et de pharmacie militaires du Val-de-Grâce under the presidency of Dr. Louis Mourier, undersecretary of state for the Service de Santé militaire. The purpose of the conference was to bring together the medical officers of armies and of army groups, the consulting surgeons of the armies engaged in the recent military operations, as well as the directors of the Service de Santé and the chief surgeons of the surgical sectors of the regions of the interior who have received the wounded directly from the front. It was desired to establish a *liaison* between the physicians and surgeons of the various armies, and permit an interchange of views between these and the physicians and surgeons of the interior, and to secure an expression of opinion as to the lessons that could be drawn, from the medical point of view, from the military operations carried out from March to June of this year. Questions of special importance discussed were: the placing and function of the advanced ambulance groups, the evacuability, transportation and apparatus needed for thigh fractures, and the indications and technic of suture of war wounds.

Honor to the American Red Cross

The American Red Cross has received a letter from General Gouraud, commander of the Fourth Army, in which he expresses his profound admiration of the excellent services rendered by the American canteens to the Fourth Army.

Legacy to the Hospice des Quinze-Vingts

An American, Mrs. William Taylor Moore, née Robinson, bequeathed to the "Hospital for the Three Hundred" (an asylum for the blind in Paris, founded by St. Louis) 100,000 francs for the care and instruction of French soldiers blinded by the war.

Spanish Mission to Paris

Dr. Molla, a member of the Medical Faculty of Madrid, and twelve other professors chosen from the faculties of various Spanish universities, have arrived in Paris. They will visit the principal medical and surgical centers, remaining in Paris for the entire month of August. The mission is charged to prepare a report on the progress made by French war surgery.

A New Type of Surgical Battle Formation

The Société française de secours aux blessés militaires has devised a new type of surgical ambulance which meets the needs arising during active military operations. This ambulance can be advanced and moved back quickly, being essentially different from those in use for some months. Furthermore, it enables the surgeons to render speedy, immediate and complete service to patients with extensive wounds of the thorax, abdomen or head. It consists of a number of large tents, one serving as a *salle de triage*, a second for local administration, another for preparing the wounded for operation, a fourth for radiography; an operating tent, connected with the sterilizer camion, which contains two autoclaves, and, finally, the hospitalization or ward tents. For transport, the whole outfit is carried in two camions or trucks and two trailers.

American Red Cross at the Belgian Front

The Belgian sovereigns received the delegation of the American Red Cross, headed by Major Perkins, European Red Cross commissioner, at the Belgian front. Major Perkins delivered to Queen Elizabeth the million offered by the American Red Cross to the Belgian Red Cross. The king thanked the delegation and expressed his appreciation of the assistance given by the United States.

LONDON LETTER

LONDON, Aug. 27, 1918.

The Maternity and Child Welfare Act

The powers of local authorities to safeguard the health of mothers and young children have been enlarged by the maternity and child welfare act, the introduction of which was reported in a previous letter. The act enables local authorities "to make such arrangements as may be sanctioned by the Local Government Board for attending to the health of expectant mothers and nursing mothers and of children who have not attained the age of 5 years and are not being educated in schools recognized by the board of education." A local authority exercising powers under the act must appoint a maternity and child welfare committee which must include at least two women. One third of the committee may consist of persons specially qualified by training or experience in subjects relating to health and maternity who are not members of the local authority. The government grant is now available for the following additional services: hospital treatment for children up to 5 years of age; lying-in homes; home helps; the provision of food for expectant and nursing mothers and for children under 5 years of age; crèches and day nurseries; convalescent homes; homes for children of widowed and deserted mothers and for illegitimate children, and experimental work for the health of expectant and nursing mothers and of infants and children under 5 years of age. The Local Government Board seeks to secure that, so far as practicable, there shall be an efficient midwifery service throughout the country, and it looks to the municipal councils to organize the necessary arrangements. It is considered important that the status of midwives should be raised, and that competent trained women who devote themselves to this service should be adequately remunerated. They consider that a competent trained midwife, devoting her whole time to the work, should be able to secure an income of from $600 to $750 a year. A local authority may pay or guarantee the salary of a competent midwife, and suggestions for improving the midwifery service are invited. Each midwife should be seen by the supervising authority's inspector of midwives at least once a quarter, and on these visits general instruction and assistance should be given. A sufficient staff of competent inspectors—preferably qualified medical women—is therefore needed. Local authorities should arrange to pay the fees of physicians called in by midwives during the period of confinement, though in cases which are not necessitous the patients would no doubt repay the cost.

The board's standard of 500 births to each health visitor has been modified. Experience has shown that when the duties properly required of a health visitor are fully performed, a district with about 400 births a year is ordinarily as much as one worker can undertake. Other offices, such as that of tuberculosis nurse, school nurse and mental deficiency visitor, may be held with that of health visitor in certain cases, so as to give the officer a compact district and save traveling. The salary of a whole-time officer acting as health visitor, with or without these other posts, should as a rule be not less than $600 a year. In sparsely populated districts it may be convenient to appoint the district nurse-midwives of nursing associations as health visitors.

The home nursing services in respect of which the grant is now available are nursing needed for expectant mothers, maternity nursing, the nursing of puerperal fever, and the nursing of measles, whooping cough, epidemic diarrhea in young children, and ophthalmia neonatorum. The board notes with satisfaction the recent increase in the number of welfare centers in which mothers receive medical and hygienic advice on the care of their children, and say that, when practicable, there should be a center for each health visitor's district. Centers may be combined with school clinics, especially for ophthalmic and dental cases, and, subject to certain conditions, cots may be provided experimentally at centers on a small scale, but not for acute cases of illness.

The provision of further lying-in accommodation in the many areas where it is needed is encouraged by the board; and suitable "home helps" may be employed and paid by the authority, to look after a woman's home during her confinement. The home help should undertake the mother's ordinary domestic duties, including cleaning, cooking, washing, care of children, mending and marketing. She should not undertake any work which properly belongs to the sphere of the trained nurse or midwife, nor assist at a confinement unless a physician or a midwife is in attendance. Home helps should be specially trained at maternity centers and day nurseries, receiving practical instruction in plain and invalid cookery, food values and prices, laundry work, mending, infant care and hygiene.

Civics and Eugenics

The Summer School of Civics and Eugenics, which will last for nearly a fortnight, was opened at Oxford. The opening address was delivered by Prof. J. H. Muirhead of the Birmingham University, who said that civics meant an intelligent interest in the whole organization of civilized society, and especially the society to which they themselves belonged. This extension of citizenship from devotion to the parish or the neighborhood to the state raised a difficulty in regard to their emphasis on civic education at the present time. He would be asked, Was not this the mistake which Germany had been making, that she had put the state in front of education? The education of the citizen had begun, innocently enough, in the call to look beyond the narrow interests of individual or family egoism, but had it not ended in the creation of another or more terrible egoism—the egoism of the state; and had not the state just at the present time tried to impress the idea of citizenship as the leading mark of education? He accepted the warning of a German writer against making the state the supreme object of devotion. Were they making a mistake in emphasizing civic education or citizenship as the oriflamme of their new education? Would it not be better to take as their guiding motto the free personality of the individual, and, instead of emphasizing the education of the citizen into a word like civics, should they not emphasize the freedom of the individual soul, and, perhaps in some new science yet unnamed, the doctrine of freedom? Passing to eugenics, he said it meant more than a kind of "adult hygiene" concerned with inheritance, rather than habits. What he understood by eugenics was a way of looking at their civilization which emphasized the mental and physical inheritance as something which was the result of the long ages of the struggle of mankind on earth. It seemed to him a good omen and a step founded on true insight as to the nature of civics and eugenics that the two societies had united in this school. It was the first effort, he understood, at cooperation between them.

Engineers and Public Health

In the *Times* engineering supplement, attention is called to the necessity for collaboration between medicine and engineering in undertakings that affect the public health. It is pointed out that at present engineers often take on themselves work that ought to be done by geologists, chemists and bacteriologists, and this without due consultation with physicians, although they cannot be specialists in all these subjects. On the other hand, health officers are sometimes imperfectly acquainted with the possibilities of engineering in connection with the treatment of water and sewerage work generally, and without such knowledge they are obviously at a disadvantage in suggesting improvements. Proper collaboration between the engineer and specialists in the various branches of science concerned is therefore required, and would be the means not only of saving needless expenditure but of enhancing the efficiency of the works carried out.

Deaths

Zina Goodell Harrington, Mankato, Minn.; Albany (N. Y.) Medical College, 1857; aged 88; at one time a member of the American Medical Association; and president of the Minnesota Valley Medical Association; who in 1907 was presented with a loving cup by his co-workers in celebration of the completion of fifty years of practice; for several years president of Mankato State Bank; died at his home, September 10, from senile debility.

William Franklin Barclay, Pittsburg; Long Island College Hospital, Brooklyn, 1866; aged 76; a member and once vice president of the Mississippi Valley Medical Association; who discovered in 1893 and applied methods whereby he successfully combined gold with bromine, mercury, arsenic and other metals; died at his home, September 9.

Lieut. Samuel Brody Leiser, M. C., U. S. Army, Chicago; University of Illinois, Chicago, 1917; aged 26; a Fellow of the American Medical Association; who had been on duty at U. S. General Hospital No. 9, Lakewood, N. J., and was on leave in Chicago; died at the Presbyterian Hospital, September 16, from ulcerative colitis.

Walter C. Taylor, Springfield, Ohio; Starling Medical College, Columbus, Ohio, 1898; aged 52; a Fellow of the American Medical Association; secretary of the Clark County Medical Society in 1915, and president in 1918; died in the City Hospital, Springfield, Ohio, September 12, from pulmonary tuberculosis.

Benjamin Charles Guldin, Minersville, Pa.; University of Pennsylvania, Philadelphia, 1870; aged 69; at one time a member of the Medical Society of the State of Pennsylvania, and coroner of Schuylkill County; died at his home, September 1, from cerebral hemorrhage.

James E. Wylie, Little Rock, Ark. (license, Arkansas, 1903); aged 68; a practitioner for forty-one years; night desk sergeant at police headquarters, North Little Rock, for several months; died at the home of his daughter in Los Angeles, June 18, from nephritis.

Died in the Service
IN FRANCE
CAPT. HOBBIE W. DANIELS, M. C., U. S. ARMY, 1872-1918
See The Journal, last week, p. 992

George Dexter Dulin, Las Animas, Colo.; College of Physicians and Surgeons, Keokuk, Iowa, 1891; Beaumont Medical College, St. Louis, 1892; aged 52; for two terms a member of the state legislature; died in St. Luke's Hospital, Denver, September 4, from pneumonia.

Lieut. Harold Greene Porter, Assistant Surgeon, U. S. N. R. F., Syracuse, N. Y.; University of Syracuse, N. Y., 1911; aged 25; a Fellow of the American Medical Association; on duty at the Naval Hospital, Chelsea, Mass.; died recently from influenza.

James Henry Briggs, Providence, R. I. (license, Rhode Island State Board of Health, years of practice, 1895); aged 64; a practitioner of Providence for twenty-five years; died in St. Joseph's Hospital in that city, September 8, six days after a surgical operation.

William H. Kinnier, Dubuque, Iowa; Albany (N. Y.) Medical College, 1870; aged 74; a member of the Iowa State Medical Society; died in Mercy Hospital, Dubuque, September 9, a short time after a surgical operation.

Felix Stanislaus Rynkiewicz, Shenandoah, Pa.; Jefferson Medical College, 1917; aged 27; until July an intern in the State Hospital for the Northern Anthracite Coal Region of Pennsylvania; died at his home, August 30.

John McIntyre, Butte, Mont.; University of Bishop's College, Montreal, Quebec, 1898; aged 52; a member of the Montana State Medical Association; died at his home, September 11, from disease of the kidney.

Edgar Chapman Gates, Providence, R. I.; New York University, New York City, 1882; aged 59; formerly surgeon in the United States Marine Hospital Service; died at his home, September 10, from heart disease.

Lieut. John Houston Steen, M. C., U. S. Army, Vaughan, Miss.; University of Nashville, Tenn., 1907; aged 37; a Fellow of the American Medical Association; is reported to have been killed in action, August 11.

Died in the Service
IN FRANCE
LIEUT. JOHN HOUSTON STEEN, M. C., U. S. ARMY, 1881-1918

Ferdinand Bernhard Hoermann, Watertown, Wis.; Homeopathic Medical College of Missouri, St. Louis, 1878; aged 74; died at St. Joseph's Hospital, Milwaukee, September 15, after a surgical operation.

James Barr, Sierra Madre, Calif.; Rush Medical College, 1868; Hahnemann Medical College, Chicago, 1880; aged 82; many years a practitioner of Algona, Iowa; died in Los Angeles, August 24.

Alvaro C. Durkee, Pontiac, Ill.; Rush Medical College, 1901; aged 47; a Fellow of the American Medical Association; died at his home, July 23, from uremia.

Robert Goodlove Harris, Sandersville, Ga.; Meharry Medical College, Nashville, Tenn., 1917; aged 33; died at his home, September 7, from tuberculosis.

Allen Schley Reynolds, Hancock, W. Va.; University of Maryland, Baltimore, 1880; aged 61; died at his home, September 9, from acute gastritis.

Lewis A. Shollenberger, Reading, Pa.; Hahnemann Medical College, Philadelphia, 1885; died in a sanatorium in New Jersey, September 2.

James Addison Ambrose, Dayton, Ohio; Medical College of Kansas City, Mo., 1882; aged 74; a veteran of the Civil War; died recently.

Nathaniel Gooch, Nashville, Tenn.; Vanderbilt University, Nashville, 1885; aged 78; a Confederate veteran; died at his home, September 7.

Marriages

LIEUT. FLOYD WALTER APLIN, M. C., U. S. Army, Waukesha, Wis., on duty at Waco, Texas, to Miss Elsie Evans of Washington, D. C., at Waco, recently.

ALEXANDER STEWART MACMILLAN, Boston, to DR. ANNE LESLIE HOOPER of Somerville, Mass., in Boston, September 5.

MEFFORD RUNYON, Leak Island, N. Y., to Mrs. Katherine Flower Kip of South Orange, N. J., September 10.

JAMES M. PALMER, JR., Cumberland, Md., to Miss Ruth Maxwell of Morgantown, W. Va., September 7.

THEODORE F. THOMPSON, Lakewood, N. J., to Miss Ella Anderson of Toms River, N. J., September 4.

HARRY A. PAWLING, Watertown, N. Y., to Miss E. Louise Sweet of Adams, N. Y., September 2.

LEVI ST. JOHN HELY to Miss Sophie Wolters, both of Oakland, Calif., September 4.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

CARMINZYM

Report of the Council on Pharmacy and Chemistry

The Council has authorized publication of the following which explains why Carminzym was not accepted for New and Nonofficial Remedies. W. A. PUCKNER, Secretary.

Carminzym is a tablet sold by Fairchild Bros. and Foster, New York. Each tablet contains, according to claims made, approximately 32 mg. of an extract of pancreas, 50 mg. sodium bicarbonate, 172 mg. prepared chalk, 1.5 mg. powdered ipecac and "aromatics *q. s.*" Without consideraing other possible conflicts with its rules, the Council held the preparation inadmissable to New and Nonofficial Remedies for conflict with Rule 10 which holds that unscientific or useless articles are not acceptable products.

The Council holds that complex mixtures of remedial agents are, from every point of view, inimical to therapeutic progress and therefore to the public welfare. Such mixtures are especially objectionable because it is impossible accurately to determine the effects which follow the simultaneous administration of a number of drugs having dissimilar actions; because the practice of prescribing such mixtures tends to discourage careful consideration of the special needs of individual patients without which there can be no rational drug therapy. On the contrary, with the use of such mixtures therapeutic treatment becomes haphazard and mere guesswork.

The Council, appreciating that long established customs cannot be changed at once, has applied Rule 10 concerning the recognition of mixtures with the greatest leniency compatible with consistency. When there has been a reasonable doubt concerning the value of a mixture it has frequently directed that Rule 10 should not apply pending further clinical trial of such mixture. In no instance has subsequent experience shown that a strict interpretation of the rule would have worked hardship or injustice. The Council feels that there is no longer warrant for the admission of complex mixtures to New and Nonofficial Remedies or for the retention of any that have been admitted unless definite evidence of the therapeutic value of such combinations is available. In accordance with this decision several mixtures now described in New and Nonofficial Remedies will be omitted at the expiration of the three year period for which articles are accepted.

Reverting to the Carminzym tablet: When it is desired to obtain the effects of pancreatic extract by oral administration it must be administered with a view of preventing its destruction by the gastric fluid. With this end in view an antacid should be administered to decrease the acidity of the gastric juice. The amount of alkali may be supplied in the form of any of the official preparations, but the amount must be adjusted to the individual patient for the reason that no two successive patients are likely to have the same degree of gastric acidity.

Ipecac has a well defined though limited field of usefulness. When it is used, it should be given with a due regard to the amount needed by the patient and the frequency of the repetition of the dose. There is no reason to suppose that any two successive patients will require ipecac and extract of pancreas in a fixed proportion and with equal frequency. As a matter of fact, the amount of ipecac in Carminzym is so small that no definite therapeutic action can be assigned to it and its use in this combination is purely empirical.

In a word, the employment of mixtures of pancreatic extract, alkalis, ipecac and carminatives in fixed proportion leads to slipshod treatment and irrational therapeutics. Carminzym is an irrational mixture the use of which is detrimental to therapy.

The preceding report was sent to Fairchild Bros. and Foster for comment in accordance with the Council's usual procedure. The following reply was received:

The long established custom of the use of mixtures of remedial agents rests upon considerations well known and generally accepted. This is equally true of combinations of drugs of similar and dissimilar properties. The drugs of these combinations, especially those of marked therapeutic action, are well known and used by themselves when indicated.

In fact, dissimilarity of action is a cause of combination, an essential of synergism.

Drugs classed as similar are by no means alike in action; laxatives, tonics, carminatives, diuretics are combined with distinct advantage, economy of dose, enhanced effect, potency not obtainable with the single drug.

Your sweeping arbitrary conclusions that complex mixtures of remedial agents are from every point of view inimical to therapeutic progress is not, it seems to us, sustained by fact and experience. There is therapeutic progress in the considerate use and observation of combinations as well as in the use of a single drug. Indeed, in the production of a synthetic chemical substance as a therapeutic agent, the combination of potent and dissimilar elements is worked out to mitigate and correct an objectionable side effect, and promote desirable action.

As for ourselves, at the very outset in our line of work we quite voluntarily declared our principles and our intentions as opposed to incompatible and therefore unstable or inert combinations of the enzymes; and against the "unnecessary multiplication of preparations" —see Fairchild's Hand-book of the Digestive Ferments.

Is not this after all the crux of the whole matter—does a combination contain the ingredients stated, does it possess the demonstrable properties which are to be attributed to it in consequence of this composition; and if for a certain purpose, is it well designed therefor?

Carminzym presents certain agents of well known properties, not in the least of incompatible or antagonistic action, but indeed especially suitable for the particular purpose designed; its efficacy not to be measured and judged by theory or opinion as to the efficiency of a certain dosage of a particular drug by itself. That the doses as contained are minimal and effective is distinctly advantageous.

The alkaline carbonates are in Carminzym in stated quantities; the physician adjusts the dosage to the individual patient and with obvious evidence of the efficiency of the adjustment. As we understand it, the employment of alkaline carbonates is not based on purely chemic considerations—a definite known quantity of acid of the gastric juice is to be neutralized; the whole literature and practice dealing with the alkaline carbonates show them to be accredited with a much wider field of use and repute in gastro-intestinal disorders.

The pancreatic extract in Carminzym is designed to be diffusible in the stomach, the tablet is preferable to be crushed in the mouth before swallowing, and we believe the pancreatic extract to be an effective constituent as administered in Carminzym.

You comment as follows:

> "Ipecac has a well defined though limited field of usefulness. When it is used it should be given with due regard to the amount needed by the patient and the frequency of the repetition of the dose."

This in a sense may be said of any of the most useful drugs, but not in the least special degree does it apply to ipecac, which is, on the contrary, of quite characteristic, peculiar range of therapeutic properties, useful in varying combinations and in widely varying proportions and doses according to the purpose for which it is employed.

Ipecac in well known official alkaline, carminative, laxative preparations occurs in the "average dose" in the varying qantities of 1/12, 1/10, 1/8 and 3/10 of a grain.

The ipecac in combination with the other ingredients in Carminzym is designed for a tablet which shall carry a minimal quantity whilst capable of adequate remedial action, thus admitting of increase of dosage or repetition as occasion requires. This quantity of ipecac was not taken at random, but chosen after long trial and consideration.

We believe that Carminzym possesses carminative properties in a superior degree and that, furthermore, in consequence of its composition it directly stimulates the gland secretions and thus exerts a beneficial action upon the whole digestive functions.

Carminzym is for use as occasion requires, and this is to be especially noted. Thus it is not only of direct benefit, but helpful in promoting systematic therapeutic measures and regimen.

The Council takes the ground that complex mixtures of remedial agents are so wrong that there is no longer warrant for their admission into New and Nonofficial Remedies; and that Carminzym is an irrational mixture.

We hold that certain desirable therapeutic properties may rationally be attributable to Carminzym; and that these are manifested in practice.

During the time since the description was sent and the receipt of the statement of the action of the Council, some ten months, Carminzym has proved of constantly increasing service.

The statement in the letter of Fairchild Bros. and Foster "The long established custom of the use of mixtures of remedial agents rests on considerations well known and gen-

erally accepted" might well be paraphrased to read: The one-time prevalent custom of using ill-considered combinations of remedial agents has been thoroughly discredited and is generally abandoned by progressive practitioners. Such arguments as that "laxatives, tonics, carminatives, diuretics are combined with distinct advantage" have led to the use of irrational mixtures such as the compound syrup of hypophosphites and the electuary of theriaca. The Council is confident that no one who has studied the causes and treatment of digestive disorders will find occasion to prescribe at one time all the ingredients stated to be contained in Carminzym, and certainly not in the fixed proportions present therein.

The comments in the Council's report concerning ipecac certainly does apply to all active therapeutic agents. Ipecac was mentioned in the report because the several constituents of Carminzym were under discussion and hence it was necessary to point out the futility of the small dosage of ipecac in this mixture.

The announcement that "Carminzym has proved of constantly increasing service" is not convincing. The Council does not know of a single clinical study of the action of Carminzym under conditions which would have afforded satisfactory evidence of its therapeutic value.

INFORMATION WANTED

One of the Five Thousand Letters of Inquiry Received by the Propaganda Department Annually

Probably few of THE JOURNAL readers realize the service that the Propaganda department gives the public and the medical profession as an information bureau on the subjects of the nostrum evil and quackery. Ten years ago letters from laymen were an unusual thing in THE JOURNAL'S editorial office. If more than one letter a week, for instance, was received, it was a subject of comment by the staff. Today the Propaganda department alone, answers between four and five thousand letters annually, and more than half of these are from the general public. Among such letters it is inevitable that some should be oddities. One of this type is given below. It may be of interest not only to the readers of THE JOURNAL generally, but especially to psychiatrists:

Dear Sir:—I Have inquired so much about The International Health Resort, 42nd St. & Grand Blvd., Chicago, if it will do all it claims & been told you will give information. Please explain fully. My Doctor said I was on verge of Diabetes. Also tell me about the National Distributing Co., 4311-19 Lincoln Ave., Chicago. Will you give me Address of Alexander Moseley in Chicago, the street and number as He is among the testimonials in the Evidences of Success published By The resort, saying He visited all resorts in Europe and None Cured Him till He went to the International of Chicago. I want His Address so I can write Him and verify the statement. Can you recommend any of Bernarr MacFadden's Health Resorts as Best place to go for Kidney and Diabetes Troubles, or would you advise to have treatment By Correspondence from Him.

Please explain about the Bodi-Tone Co., 2100 North Avenue, your City. Please state very Best place to get urine examined from Time to Time. Is The Life Extension Institute, 25 West 45th St., New York City the Best place, or if you Know of Better please state.

Probably you can state some Institution in East Here that treats on same plan as International of Chicago.

I've been taking Cholegestine, 2 teaspoonful after meals since June 7th & Has stopped Brick Dust in Chamber. Also take Bell Ans Tablets Before & after meals. Please state if Peptenzymes is good also Nuclinated Phosphates Tablets, Abbotts. Phillips Wheat Phos. (Acid).

Please give address of U. S. Public Health Service Department & can you tell me if Dr. F. L. Sweany, State St., your City is dead, if so when, and was he such a great doctor?

I would like to know if Lionel Strongfort, Terminal Bldg., 86 Park Place is thoroughly reliable & will do all He says. He claims to Be Best developed man in World & issues pamphlets giving Him recommendations from the professors in Europe. He gives course by Correspondence in Physical Culture. Would you commence with Him or take Lessons in person from instructor? which I want to take as it is Beneficial.

Or could you name some professor or institution Here in east which would Be Best for me to attend to get Best results. Can you give me standing of some of these Physical Culture Methods also Bernarr MacFadden's Course By Mail in "Brain & Body Building". He gives this Course in Conjunction with His Encyclopedia of Physical Culture. One is guide to the other. Or would you take Course personally & what benefit thereby? If any. Also about Walter LaRauss, 825 Broad St., Newark, N. Jersey. He claims Best System. Anthony Barker, 127 West 42nd St., New York City.

Do you think I would get all Benefit I would derive from all above mentioned in a German Turn Verein, Newark Turn Verein? The Paneliculator Co. of Cleveland, Ohio also sent testimonials Here from all over. Do you Know them? My Doctor Says it is my liver & Pancreas & if I take Physical Culture with Medicines I'm told I will get results. But must get the right & proper Movements to accomplish results. So many Systems advertised in *Health & Physical Culture* Magazines. Please give me list of those fraudulent ones.

Can you give me standing of Advance Thought Publishing Co., 159 No. State St., your City & William Walker Atkinson who edits a Magazine on Clairvoyance. I think he is in that Pub. Co. at 159 No. State St. Also Yogi Pub. Society of your city. Thanking you very much for same in Advance & Truly yours,

F——— D———, New Jersey.

P. S.—Probably you can name very Best Physical Culture System that embraces all other System & get all in that System you recommend. I am interested also in Allied & Occult Sciences & Clairvoyance. Are there reliable Systems in Chicago at all? Do you recommend advertisements in *Nautilus*, New Thought Magazine?

Correspondence

THE USE OF SEWAGE AS FERTILIZER

To the Editor:—The present world crisis calls for the exertion of every effort to meet the unusual demands made on the people of our nation. Nowhere is this realized with greater force than in the matter of food production. On the one hand, the demands of our allies and our own demands call for a great increase in production. And on the other hand, the problems of transportation, labor and fertilizer are all working to make the task of increased production more difficult.

Of the latter, the matter of fertilizer has become an acute problem. In the first place, intensive farming calls for an increase in the amount of fertilizer used. And in the second place there is a serious shortage of fertilizer due to the fact that America has been dependent for so long a time on that imported from Germany. The supply from Germany being cut off, the shortage has become serious, and in some places has already affected the crops.

The subject of fertilizer shortage has been ably discussed by Frank Parker Stockbridge in the *World's Work* for May, 1918. His article showed how Germany annually dumped about 250,000 tons of potash in the United States at about $40 a ton. Today there is a call for 500,000 tons of the fertilizer. It cannot be bought for less than $300 a ton, and in limited quantities at that price. The magnitude of the industry and the need is thus shown.

Human feces and urine possess a high fertilizing value. It is a knowledge of this fact which has made intensive farming of the highest type a possibility in China, and which has made possible the feeding of many millions of people in comparatively limited areas.

Yet notwithstanding its high value as fertilizer, the use of sewage has been condemned because of the extremely high risk of spreading water and sewage borne diseases, typhoid, dysentery, cholera and intestinal parasites. For this reason, a recent order (THE JOURNAL, April 27, 1918, p. 1242) has prohibited the use of sewage as fertilizer in California except for grasses.

The danger from the use of sewage as fertilizer is very real. One of the triumphs of sanitation has been the lowering of the typhoid rate by a realization and the control of the relation between sewage and the water supply of a community. In China the use of human feces and urine has resulted in widespread infection with hookworm and *Ascaris lumbricoides*. And the only reason why devastating epidemics of cholera and dysentery have not depopulated whole provinces is that the Chinese are accustomed to use boiled tea instead of fresh water, which is never drunk as a beverage.

Shall, then, all this valuable material, so necessary and so useful as fertilizer keep on going to waste as it is at the present time? If necessary to preserve the health of the nation by preventing epidemics, the answer must be "Yes."

My purpose, however, is to present for consideration of the profession, and public health officers in particular, an outline

of a plan by which it may be possible to use sewage as fertilizer, and with safety.

March 12, 1918, an experimental garden was planted for determining the value of the material from the second and third chambers of the septic tank, in use in the Kachek Hospital, as fertilizer. The purpose of the experiment (a report of which is to be published in the *China Medical Journal*) has been to work out a plan by which the Chinese may use human feces and urine as fertilizer with safety.

Three equal amounts of beans, millet and two other Chinese grains were planted in rows, one part to a row. One row was fertilized with material from the second chamber of the septic tank, one row was fertilized with material from the third chamber of the septic tank, and the third row —the control—was unfertilized. Thus there were three rows of beans, three of millet, etc. The results of the harvest are shown in the accompanying table. The value of the material from the septic tank as fertilizer has thus been demonstrated in a practical way.

FERTILIZING POWER OF MATERIAL FROM THE SEPTIC TANK

Foodstuff	First Row: Material from Second Chamber Used, Ounces	Second Row: Material from Third Chamber Used, Ounces	Third Row: Control: No Fertilizer Used, Ounces
Beans	42	20	12
Millet	5.0	2.9	1.7
Ku vae	84	66	49
Tiak kha	11.5	8.0	6.5

The action of the septic tank is well known, and needs no comment except to note that the material from the second and third tanks would contain no pathogenic bacteria, protozoa or ova, especially if treated with heat or chlorinated lime.

We have, then, a large quantity of fertilizer that can be made safe by means of the septic tank. That all the sewage of large towns and cities in America should go to waste in view of the present shortage of fertilizer, in view of the great demand for increased production of food, and in view of the fact that it can easily be made safe, is unpardonable. Steps should be taken at once to use this great asset. Not only will it solve the fertilizer problem during the war, but it will make America independent of outside sources of fertilizer after the war.

NATHANIEL BERCOVITZ, B.S., M.D.,
Kachek, Hainan, China.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

SUGAR TREATMENT OF TUBERCULOSIS

To the Editor:—I read an article recently on "Sugar as a Cure for Tuberculosis." This article stated that Prof. Domenico Lo Monaco, director of the Biochemical Section of the Lincei Academy of Rome, is credited by the Italian scientific press with a discovery which will revolutionize the treatment of tuberculosis. Please inform me as to what form of saccharose is used, the strength of the solution, the number and frequency of injections, etc. I shall be grateful for an answer to the foregoing questions and for any other information you can give me concerning this treatment, as I have several cases of tuberculosis under my care.

L. C. J. NUNES, M.D., St. Martin, D. W. I.

ANSWER.—A brief note appeared in Queries and Minor Notes (THE JOURNAL, July 13, 1918, p. 142) concerning this treatment of Lo Monaco, merely stating that the subject was new and had thus far been referred to only in lay publications. The sugar treatment of tuberculosis is the result of researches since 1907 by Dr. Lo Monaco, who is professor of physiologic chemistry at the University of Rome. His researches have been concerned with the influence on the secretions of sugar parenterally introduced. He had previously considered the possibility of influencing the mammary and other secretions by subcutaneous injection of small amounts of sugar. He found that when persons with copious bronchial secretion were given subcutaneous injections of 4 or 5 gm. of saccharose, expectoration rapidly diminished and ceased completely in many cases. When the injections of the sugar solution were stopped, expectoration returned and disappeared again when the daily injections were resumed. A study of various cases indicated that a complete cessation of bronchial secretion occurred when there was no dilatation of the bronchi or when the cavities in the lungs were not large. When these were present the secretion decreased, but did not disappear completely. The sugar has an inhibiting action on the secretions through vasoconstriction, which the injection of strong solutions of sugar will produce. This vasoconstricting action affects the lymphatics and mucous glands. The strong solutions of saccharose also seem to have an antispasmodic action on the bronchi and bronchioles. This was demonstrated by La Grotteria, who utilized this method in the treatment of two cases of whooping cough. The technic utilized by Professor Lo Monaco consists of a daily intramuscular injection of 4 or 5 gm. of sugar or two injections of 2.5 gm. each. In persons emaciated by long sickness, in order not to cause pain, a few cubic centimeters of cocain solution are sometimes added to the solution. The solution is prepared by dissolving 5 gm. of saccharose in 5 c.c. of sterilized, distilled water.

In commenting on the treatment, the *Riforma medica* (1918, **34**, 354) says:

> The advantages of this new medication of the bronchi are truly notable, in addition to the fact that it avoids disturbing the gastro-intestinal functions, which is such a frequent drawback to the administration of drugs to act on the expectoration. The sugar treatment can be continued as long as desired, because it is harmless, to say nothing of the advantages of the sugar as a source for energy, developing a goodly number of calories in the intra-organic metabolism.
>
> In the tuberculous this method of treatment is of preeminent importance because even in the gravest cases it reduces the bronchial secretion and thus diminishes the cough and the annoying night sweats. On the side of prophylaxis, this new remedy, which, by the way, is entirely Italian in its inception, is destined to prove useful likewise, as if the expectoration is diminished there will not be so much sputum scattered about and hence there will not be so much chance of contagion from this vehicle of infection, the most dangerous and the most certain of all.

It is reported that the National Board of Health of Mexico is intending to organize free dispensaries to apply this treatment. One has already been opened in the capital, at the headquarters of the National Board of Health. It is in charge of Dr. M. Casas. It is also reported that this method is being tried in Italy in some of the sanatoriums for tuberculous soldiers and in France at the Bligny military tuberculosis sanatorium.

DIGESTIBILITY OF RAW WHITE OF EGG

To the Editor:—On the question in the subjoined paragraph; quoted from a recent publication, there seems to be a wide diversity of opinion among chemists and dietitians:

> "Raw white of egg is much less digestible than cooked, and frequently causes diarrhea when taken regularly. Egg yolk, on the other hand, is easily digestible and is all utilized, whereas only 50 to 75 per cent. of raw white is assimilated."

May I have your opinion on this subject?

A. E. H., Illinois.

ANSWER.—This subject was discussed editorially in THE JOURNAL, Sept. 22, 1917, p. 1006. The supposed easy digestibility of raw white of egg was perhaps based on the observations of Dr. William Beaumont on Alexis St. Martin. Native egg white, he found, leaves the stomach very rapidly as compared with other foods. This observation does not take into account the subsequent fate of the substance after leaving the stomach. Bateman, and Mendel and Lewis, as well as other experimenters, have noted the poor utilization of egg white when fed to experimental animals, and its tendency to produce diarrheas. Bateman found that it was decidedly indigestible for dogs and when fed in any considerable quantities invariably caused diarrheas and sometimes vomiting. It was found also to be poorly utilized, and after tolerance was established to it in the animals it could be recovered unchanged from the feces, so that it was believed to be assimilated to the extent of not more than 85 per cent. It has been found to have a similar action in some persons, and its utilization in them has been found to be as low as 50 per cent. Reaching the large intestine in the unchanged state in considerable quantities, it may very well serve as a pabulum for putrefactive bacteria. This does not apply to the coagulated egg white cooked at a temperature of about 70 C.,

which removes the partial indigestibility and changes the egg white into a readily assimilable product. While perhaps raw egg may not be toxic in the correct sense of the word, yet aside from its indigestibility, in contrast to the yolk of eggs, which seems to be well digested and utilized, "the reputed relation of excess of egg white to renal damage, and the frequent hypersensitiveness to its proteins, offer additional reasons for debating the wisdom of the liberal use of raw eggs."

THE DETERIORATION OF ARGYROL SOLUTIONS, AND FLUID-EXTRACT OF ERGOT

To the Editor:—1. How rapidly do solutions of argyrol deteriorate? 2. Does fluidextract of ergot retain its strength indefinitely?

M.D., Binghamton, N. Y.

ANSWER.—1. The manufacturers of argyrol in their advertising matter repeatedly emphasize the necessity of using a "freshly prepared" solution. They state that office solutions "should be replaced by fresh solutions about every two weeks." Culver (*Jour. Lab. and Clin. Med.*, 1918, p. 487) found that the gonococcidal activity of a 2 per cent. solution exposed at room temperature to ordinary light for two months lost, for a five minute exposure, 75 per cent. of its efficiency. This loss of strength began as early as the third day, and it continued to lose in almost direct proportion to the age. He condemns the practice of having stock solutions, and states that the quantity prescribed for home use of a patient should not exceed a "few days'" supply. It would be better still, if possible, to have the solution prepared daily.

2. This subject has been the occasion for numerous painstaking investigations. A very complete bibliography is given by Eberhardt and Eldred in the *Journal of the American Pharmaceutical Association*, 1914, p. 42. The articles abstracted by these writers indicate that there is some difference of opinion among investigators. It is quite clear, however, that fluidextract of ergot kept under the ordinary conditions prevailing in the physician's office or in a drug store will lose its activity quite rapidly and may become inert within a year.

RANKS AND PAY OF MEDICAL OFFICERS AND OF ARMY CHAPLAINS

To the Editor:—1. Some time last spring you published a list of salaries paid to medical officers in the U. S. Army, their rank, etc. Please give me this information. 2. Can you inform me as to the rank of an Army chaplain and his pay?

L. L. H., Pennsylvania.

ANSWER.—1. The ranks given to medical officers and the annual pay received are as follows: lieutenant, $2,000; captain, $2,400; major, $3,000; lieutenant-colonel, $3,500; colonel, $4,000; brigadier-general, $6,000 and major-general $8,000. Commutation for quarters: lieutenant $432; captain, $576; major, $720; heat and light: approximately $80, $120 and $160, respectively.

2. A chaplain receives the rank of lieutenant, captain and major, in accordance with his age and qualifications. His salary is the same as that of other officers of similar rank, beginning with lieutenant.

REPORTING FOR DUTY—EQUIPMENT

To the Editor:—I was examined for a commission four weeks ago and so far have heard nothing from it. As I am rather above the average size, I shall have to have my clothes made to order, which requires about ten days. Some of my friends are ordered to report in ten days from the date of the notice, which gives insufficient time in which to become equipped. 1. Should I take the chance and order the uniform now before I have been notified that a commission has been awarded to me? 2. May a man report in civilian clothes? 3. Should the uniform be worn when making the trip to the place at which one is to report? 4. Should a service hat or cap be worn when reporting for duty? Please omit my name. K. G. E.

ANSWER.—1. See item, Medical Mobilization and the War: "Commissions Offered and Orders to Duty on Acceptance," this issue. 2. Yes; but preferably in a uniform, completely equipped. 3. Yes. 4. Either; preferably, the hat.

WHEN MEDICAL OFFICERS MAY WEAR THE UNIFORM

To the Editor:—Is it proper for a doctor to wear his uniform after accepting a commission, or only after orders have been received to report to camp for service?

R. L., Nebraska.

ANSWER.—It is not proper for medical officers to wear the uniform until ordered to active duty.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARIZONA: Phoenix, Oct. 1. Sec., Dr. Allen H. Williams, 219 Goodrich Bldg., Phoenix.

ARKANSAS: Little Rock, Nov. 12-13. Sec., Regular Bd., Dr. T. J. Stout, Brinkley, Ark.; Sec., Eclectic Bd., Dr. C. E. Laws, 803½ Garrison Ave., Ft. Smith.

CALIFORNIA: Sacramento, Oct. 21-24. Sec., Dr. C. B. Pinkham, Butler Bldg., San Francisco.

COLORADO: Denver, Oct. 1. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

CONNECTICUT: New Haven, Nov. 12-13. Sec., Regular Bd., Dr. C. A. Tuttle, 196 York St., New Haven; Sec., Eclectic Bd., Dr. James E. Hair, 730 State St., Bridgeport; Sec., Homeopathic Bd., Dr. E. C. M. Hall, 82 Grand Ave., New Haven.

DISTRICT OF COLUMBIA: Washington, Oct. 8. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.

GEORGIA: Atlanta, Oct. 8-9. Sec., Dr. C. T. Nolan, Marietta.

IDAHO: Boise, Oct. 1-2. Sec., Dr. Ray H. Fisher, Rigby.

KANSAS: Topeka, Oct. 8-9. Sec., Dr. H. A. Dykes, Lebanon.

MAINE: Portland, Nov. 12-13. Sec., Dr. Frank W. Searle, 776 Congress St., Portland, Me.

MASSACHUSETTS: Boston, Nov. 12-14. Sec., Dr. Walter P. Bowers, No. 1 Beacon St., Boston, Mass.

MICHIGAN: Lansing, Oct. 8-10. Sec., Dr. B. D. Harison, 504 Washington Arcade, Detroit.

MINNESOTA: Minneapolis, Oct. 1-4. Sec., Dr. T. McDavitt, 741 Lowry Bldg., St. Paul.

MISSOURI: Kansas City, Sept. 30-Oct. 2. Sec., Dr. George H. Jones, State House, Jefferson City.

MONTANA: Helena, Oct. 1. Sec., Dr. S. A. Cooney, Power Bldg., Helena.

NEVADA: Carson City, Nov. 4. Sec., Dr. J. ... Lee, Carson City.

NEW JERSEY: Trenton, Oct. 15. Sec., Dr. Alex. MacAlester, 433 E. State St., Trenton.

NEW MEXICO: Sante Fe, Oct. 14. Sec., W. E. Keser, East Las Vegas.

OKLAHOMA: Oklahoma City, Oct. 8-9. Sec., Dr. J. J. Williams, Weatherford.

RHODE ISLAND: Providence, Oct. 3. Sec., Dr. B. U. Richards, 315 State House, Providence.

UTAH: Salt Lake City, Oct. 7-8. Sec., Dr. G. F. Harding, 405 Templeton Bldg., Salt Lake City.

Dental Colleges Classified

At the annual meeting of the Dental Educational Council of America, held in Chicago, July 31, 1918, a classification of the dental colleges in the United States was completed. The list as just furnished us by Dr. Henry L. Banzhaf, the secretary of the Council, is as follows:

CLASS A

Creighton University, College of Dentistry, Omaha, Neb.
Harvard Dental School, Boston, Mass.
Marquette University, College of Dentistry, Milwaukee, Wis.
Medical College of Virginia, School of Dentistry, Richmond, Va.
North Pacific Dental College, Portland, Oregon.
Ohio State University, College of Dentistry, Columbus, Ohio.
The Thomas W. Evans Museum and Dental Institute, University of Pa.
Tufts Dental College, Boston, Mass.
University of California, College of Dentistry, San Francisco, Calif.
University of Illinois, College of Dentistry, Chicago, Ill.
University of Iowa, College of Dentistry, Iowa City, Iowa.
University of Michigan, College of Dentistry, Ann Arbor, Mich.
University of Minnesota, College of Dentistry, Minneapolis, Minn.
University of Pittsburgh, College of Dentistry, Pittsburgh, Pa.
University of Southern California, College of Dentistry, Los Angeles.
Northwestern University Dental School, Chicago, Ill.

CLASS B.

Colorado College of Dental Surgery, Denver, Colo.
Georgetown University, School of Dentistry, Washington, D. C.
Howard University Dental School, Washington, D. C.
Atlanta-Southern Dental College, Atlanta, Georgia.
Louisville University, College of Dentistry, Louisville, Ky.
Chicago College of Dental Surgery, Chicago, Ill.
Indiana Dental College, Indianapolis, Ind.
Loyola University, School of Dentistry, New Orleans, La.
Tulane University, School of Dentistry, New Orleans, La.
Baltimore College of Dental Surgery, Baltimore, Md.
University of Maryland, Dental Department, Baltimore, Md.
St. Louis University, College of Dentistry, St. Louis, Mo.
Washington University Dental School, St. Louis, Mo.
Kansas City, Dental College, Kansas City, Mo.
Western Dental College, Kansas City, Mo.
University of Buffalo, Dental Department, Buffalo, N. Y.
New York College of Dentistry, New York.
College of Dental and Oral Surgery of New York.
Western Reserve University Dental School, Cleveland, Ohio.
Ohio College of Dental Surgery, Cincinnati, Ohio.
Philadelphia Dental College, Philadelphia, Pa.
Vanderbilt University, School of Dentistry, Nashville, Tenn.
University of Tennessee, College of Dentistry, Memphis, Tenn.
Meharry Dental College, Nashville, Tenn.
George Washington University Dental School, Washington, D. C.

College of Physicians and Surgeons, Dental Dept., San Francisco, Calif.
Baylor University Dental Department, Dallas, Texas.

CLASS C

Lincoln Dental College, Lincoln, Neb.
College of Jersey City, N. J.
Cincinnati College of Dental Surgery, Cincinnati, Ohio.
Texas Dental College, Houston, Texas.

Connecticut July Examination

Dr. Charles A. Tuttle, secretary of the Connecticut Medical Examining Board, reports the practical and written examination held at New Haven, July 9-10, 1918. The examination covered 7 subjects and included 70 questions. An average of 75 per cent. was required to pass. Of the 23 candidates examined, 17 passed and 6 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Yale University		(1918)	77.9, 79.6, 84.7, 85.3
Georgetown University		(1918)	79.6, 85.9
Johns Hopkins University		(1917)	76.2, 77.3
University of Maryland		(1916)	75.1
Harvard University		(1918)	75.2
Tufts College Medical School		(1918)	75, 79.7
Columbia University		(1913) 82.1; (1917) 79.6;	(1918) 83.9
Cornell University		(1918)	81.9
University and Bellevue Hosp. Med. Coll.		(1918)	79.5
	FAILED		
College of Phys. and Surg., Los Angeles		(1912)	63.6
University of Louisville		(1917)	71
Tufts College Medical School		(1918)	68.7
Jefferson Medical College		(1905)	67.5
University of Vermont		(1914)	67.1
National University, Athens		(1911)	57.3

Connecticut Homeopathic July Examination

Dr. E. C. M. Hall, secretary of the Connecticut Homeopathic Medical Examining Board, reports the written examination held at New Haven, July 9, 1918. The examination covered 7 subjects and included 70 questions. An average of 75 per cent. was required to pass. One candidate was examined, who passed. One candidate was licensed by endorsement. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Hahnemann Med. Coll. and Hosp. of Philadelphia		(1918)	79

College	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement with
Hahnemann Med. Coll. and Hosp. of Philadelphia		(1911)	New York

Connecticut Eclectic July Meeting

Dr. James E. Hair, secretary of the Connecticut Eclectic Medical Examining Board, reports that 2 candidates were licensed through reciprocity at the meeting held at New Haven, July 9, 1918. The following colleges were represented:

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Eclectic Medical Coll. of the City of New York		(1907)	New York
Eclectic Medical Institute		(1906)	Texas

District of Columbia July Examination

Dr. Edgar P. Copeland, secretary of the Board of Medical Supervisors of the District of Columbia, reports the oral and written examination held at Washington, July 9-11, 1918. The examination covered 16 subjects and included 80 questions. An average of 75 per cent. was required to pass. Of the 16 candidates examined, 14 passed and 2 failed. One candidate was licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Georgetown University		(1918)	82.8, 89.9
George Washington University		(1918)	80.5, 81.2, 83.5, 88.6, 89.1
Howard University		(1915) 85.8; (1917) 80.3, 82.4, 86.1;	(1918) 79.4, 85.8, 88.4.
	FAILED		
Howard University		(1907)	59.1
University of Maryland		(1917)	70.7

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Georgetown University		(1908)	Maryland

Book Notices

SURGERY OF THE SPINE AND SPINAL CORD. By Charles H. Frazier, M.D., Sc.D., Professor of Clinical Surgery and Surgeon to Hospital of University of Pennsylvania. With the collaboration of Alfred Reginald Allen, M.D., Associate in Neurology and Neuropathology, University of Pennsylvania. Cloth. Price, $8. Pp. 971, with 386 illustrations. New York: D. Appleton & Co., 1918.

As one reads the pages of this book, one does so with a sense of increasing satisfaction. The bringing together of the essentials of anatomy, normal and pathologic physiology, various methods of examination and the surgery of the cord in one volume is an enormous undertaking and one for which the medical man and the surgeon should thank the man who has accomplished it. The chapter on spinal tumors is interesting and complete. There is a feeling of increased optimism in treatment after reading this portion of the work. In the section on surgery of the spinal roots the discussion of gastric crises in tabes dorsalis and operative relief is dwelt on at length in the hope of better things in the future development of this field of surgery. This monograph is one of the hopeful signs in American medical literature. The author has limited himself to a definite field and dealt with it so comprehensively that the volume should stand as a landmark for some time to come.

THYROID AND THYMUS. By André Crotti, M.D., F.A.C.S., LL.D., Surgeon to Grant and Children's Hospitals, Columbus, Ohio. Half morocco. Price, $10. Pp. 567, with 129 illustrations. Philadelphia: Lea & Febiger, 1918.

This work presents in a fairly satisfactory manner a general review of the thyroid and thymus questions, but it cannot be said that anything materially new has been added to our knowledge of the subject. The book reminds one very much of a basket of berries in which all the good ones are placed on the top layer. It has a beautiful mottled red cover and heavy glazed paper, both of which may add to the cost of the book without increasing its value.

THE CONTROL OF THE DRINK TRADE. A Contribution to National Efficiency, 1915-1917. By Henry Carter. With a preface by Lord D'Abernon. Cloth. Price, $2.50 net. Pp. 323, with 19 illustrations. New York: Longmans, Green & Co., 1918.

In this interesting study of a great social and economic problem, the author describes the conditions that led the British government to regulate the use and sale of alcoholic liquors in Great Britain—a measure dictated by military necessity. The development of complete national control is traced from the early days of the war when work in the shipyards, in the munitions factories and in the transport areas was greatly hampered by drinking among the battleship workmen, crews, dock laborers and porters. The control began in a limited area of Great Britain, but as it was soon found that liquor was easily obtained from a zone outside this area, the regulation was extended by 1917 to every part of the island. The hours during which drink might be sold were curtailed by more than one-half the usual day in Scotland and by about two-thirds the usual day in England and Wales. Treating was prohibited, spirits were diluted, "credit" trade in liquor was cut off, and registered clubs were placed under the same regulations as licensed liquor houses. The control board did not confine its work to restrictive action, however. The author devotes some interesting pages to its constructive activities, which include regulation of the public sale of food served without intoxicating liquors; improvement of licensed houses, on the theory that more wholesome surroundings will promote temperance; the establishment of rival attractions, such as bowling greens, reading rooms and moving pictures, and provision for the holding of trade union meetings elsewhere than on licensed premises. Among the results of government regulation, the author emphasizes increased sobriety, a decrease in the number of convictions for drunkenness and of attempted suicides, and above all, a marked decline in the death rate not only from alcoholism but also from cirrhosis of the liver. In 1916, when national regulation became general, the number of certified deaths

from alcoholism was 47 per cent. less, and that from cirrhosis of the liver was 26 per cent. less than in 1914. As a guide to other countries wishing to make what has been called "the greatest social experiment of modern times," the book should be most valuable.

Social Medicine, Medical Economics and Miscellany

State Care of Mental Defectives

According to a survey of Nassau County, New York, made by Dr. A. J. Rosanoff in 1916, the proportion of mental defectives to the general population is one in every 183 people. This large proportion is not alarming, in view of the fact that a considerable percentage of these defectives are not seriously enough affected to require institutional care. They do, however, need medical and psychologic advice from trained specialists in mental diseases, and in his interesting study of "The Problem of the Mental Defective and the Delinquent," Dr. C. L. Carlisle points out how this aid may be the most effectively given in state clinics for mental hygiene. He recommends that these clinics, unlike both public and private clinics already established, be kept open daily. They should not be considered as interfering in any way with the development of institutional clinics, which have a special field limited by the needs of their respective institutions. They should be distributed throughout the state with reference to the needs of the adjacent population. They should provide advice and treatment for the patients, educate the parents and friends of the patients on topics of mental hygiene, and act as a clearing house for cases subject to examination for state institutions and as a way station for patients discharged from those institutions. Each clinic should be directed by a well educated physician with general hospital experience, as well as experience in mental and nervous disorders, whose appointment should come as a result of a civil service examination. In addition, there should be a field worker for each clinic, also under civil service regulations, for the purpose of investigating family histories, following up paroled patients, and the like. The chief of the clinic should try to enlarge its field of usefulness by delivering lectures to the general public and bringing technical facts before the medical profession and facts of sociologic value before lay and civic bodies. One of its duties should be the proper disposal of patients brought before it, some of whom must be sent to hospitals for the insane, and others of criminal tendencies back to the courts for trial. In discussing the treatment of patients, Dr. Carlisle condemns the use of "disciplinary" measures, strong rooms and restricted diet as punishment, urging that such measures are antiquated and that "modern therapeutic methods adapted to abnormal mental states must be used." In order that the state may always know the number of mental defectives within its borders, he recommends a system of registration covering the various recognized fields of genetics and personality, under the auspices of the state board of charities.

Color Blindness

Studies were made by Dr. George L. Collins for the U. S. Public Health Service to determine the comparative value of the Jennings worsted skein tests and the Edridge-Green lantern test for color blindness, and to determine the effect, if any, of refractive conditions, lesions and anomalies of the eye, and also the effect of sex on different degrees of color perception. The examinations were made as a part of other studies of the effect of illumination on vision, conducted as a part of an illumination survey of the federal department buildings in Washington, D. C.

The Jennings test is a modification of the Holmgren test, and like it uses for test skeins, first, a green test skein of the color corresponding to that part of the spectrum in which those with abnormal sense for red or green see a neutral band, and secondly, a test skein of rose color made by dyeing the worsted with blue and red. The Edridge-Green lantern has seven slides containing specially prepared colored glasses and six others containing modifying glasses which may be placed in front of the colored glasses to simulate mist, fog or rain, and produce their modifying effects on signal lights in actual practice. The test is constructed on the principle of presenting colors which, while very easily named by the normal sighted, are most liable to be miscalled by the color blind.

Comparing the results of the Jennings test with the Holmgren tests, both tests detected the markedly color-blind dichromic, and both tests failed to detect the individual with shortening of the red end of the spectrum. Thirty-two persons either with normal color sense or with only such slight defects as to permit them to be passed as not color blind, and who passed the Holmgren test, made mistakes of some kind with the Jennings test. From this it would appear that persons who should be passed as of normal or nearly normal color sense are more apt to be rejected by the Jennings than by the Holmgren test.

The results of the test were too confusing to permit of definite diagnostic interpretation or to be considered final in determining accurately and definitely the presence of dangerous color blindness. The results were so contradictory as to make it impossible to decide whether a person could be considered fit for passing or should be rejected. Nothing more than a general idea was to be deduced from the results. It would appear that the Jennings test is quite inferior to the lantern tests, and the results are more confusing, more irregular, and more difficult of interpretation than those of the Holmgren test. It is impossible to lay down definite rules for the examiner to use in deciding when the examinee should be accepted or rejected, as can be done with the lantern tests. It may be concluded, then, that the Jennings test is not adapted for testing sailors and trainmen, and that its use in that way is dangerous. Collins believes, however, that this test has a distinct function, particularly during the present general state of warfare, and that it is an exceedingly ingenious and acceptable addition to the many forms of color testing apparatus now at our disposal.

The Elimination of Quinin by the Urine

Working with the urine of troops in the East, Porak (*Journal of Tropical Medicine and Hyiene*, 1918, **21**, 138) found that from 30 to 40 per cent. of ingested quinin was excreted in the urine, and further, that in cases under continuous treatment the cycle of elimination was comparable from day to day. There are three stages in the elimination of quinin; in the initial and terminal stages only traces are found, but in the middle stage, generally from the fourth to the tenth hour after absorption, there is a much increased elimination. In health the periods and modes of elimination are the same, no matter what the dose or mode of administration. When there are gastro-intestinal disturbances, such as vomiting and diarrhea in severe cases of malaria, quinin merely irritates the mucous membrane without being absorbed; hence giving it by mouth is contraindicated. In slight renal diseases there is but little change in quinin excretion. In severe nephritis, however, the alkaloid appears but slowly in the urine, and there is no third stage of elimination. When there is an enlargement of the liver in malaria it seems as if there is diminished retention by this organ, for the second stage of elimination in the urine comes on earlier. In cardiac insufficiency or decompensation only traces of quinin are found in the urine. In several cases of typhoid and leukemia, Porak found no alterations in the elimination of the drug. There is a marked diminution in the elimination of quinin in certain cases of malaria with cachexia and anemia. With improvement, the curve of elimination approaches normal, while if the condition of the patient becomes worse the elimination decreases. As the kidney is but slightly affected in malaria as a rule, and as the quinin rapidly disappears from the blood, there must be some fixation or retention in the organs in such cases. This retention appears to cause no harm, provided not more than 2 gm. are given daily.

In view of these observations it appears that for optimal effect it would be best in most cases to give quinin every three or four hours in approximately 0.25 gm. doses, preferably by mouth, except when there are gastro-intestinal disturbances, and here subcutaneous or intermuscular injection is indicated. Needless to say, the daily 2 gm. should be exceeded in cases of pernicious and primary malaria. The intravenous method should be employed in pernicious cases. The quinin treatment should be continued for several consecutive months with frequent intermissions, and the elimination by the urine should be watched.

Medicolegal

Rights and Duties Under Employer's Contract to Furnish Medical Services

(Crites v. Willamette Valley Lumber Co. (Ore.), 169 Pac. R. 339)

The Supreme Court of Oregon affirms a judgment in favor of the plaintiff, a former employee of the defendant company who sued it to recover $125 which he paid a surgeon for an operation and treatment when he had an attack of appendicitis and the company physician was out of town. The company had posted a notice which stated that in consideration of a hospital fee charged employees, each employee was entitled to full medical and surgical attendance and necessary medicines and appliances for the treatment of any injuries or sickness, all medical and surgical attendance to be furnished by the company physician or surgeon. The court says that the following facts and the legal conclusions resulting therefrom might be taken as indisputable: First, that the notice posted by the defendant and the payment by the plaintiff to it of the fees specified constituted a complete contract requiring the defendant to furnish the services of its physician to the plaintiff under the circumstances mentioned; second, that it was the duty of the plaintiff to apply for such service before employing another physician; third, it was the duty of the plaintiff to use reasonable diligence to find the company physician and request his services before employing another physician, and if he failed to use such diligence he could not hold the defendant. Whether or not he used such diligence was a question of fact for the jury to determine.

If the party requiring the services of a physician was ignorant as to who the physician was, it was his duty to inquire and ascertain from the company that employed him; but when the name and place of business or residence of the physician was known the injured should apply at the place where, under all the circumstances, it was reasonable to suppose the physician might be found. In this case the company physician had an office and a young woman attendant; also had his telephone so connected with that of an adjoining drug store that any call for his office also rang up the drug store, the employees in which in his absence were accustomed to give such information as to his whereabouts as might be necessary. But the plaintiff's wife went to the physician's residence at about 8 a. m., when it would be only reasonable to assume that he would be at his residence rather than at his office, and was informed that he was out of town. At 1:30 p. m. she went to a neighbor's and called up the physician's residence over the telephone, and was again informed that he was absent. Becoming alarmed concerning the plaintiff's condition, she called in the other surgeon. Under the circumstances the court is not prepared to say that there was any such lack of diligence on the part of the plaintiff, or his wife, as would preclude a recovery in this case.

There is no rule for the construction of this species of contracts different from the rules that apply generally to all contracts. So far as the defendant was concerned, it was in writing, and by its terms the defendant promised absolutely to furnish the services of its physician in case of sickness or injury. It was not a contract to furnish the services of its physician in the event he could be reached or was available, but to furnish his medical services when needed. The court does not wish to be understood as holding that under all circumstances it would be obligatory on the employer to have a physician at hand at the very hour or minute his services were required, or be responsible for the services of some other physician whom the employee might secure. The right to apply to another physician must depend on the circumstances and the urgency of the case. A man with a boil on his person might reasonably wait for a day for the service of a physician, while one suffering from a severe attack of appendicitis would be rash to wait for a single hour. The "rule of reason" applies here, as in all cases of a similar character. To say that having bought and paid the company for this service in advance, the plaintiff should be required to pay for it a second time and stand the loss, because the company was not in a position to furnish it, would not be just and would be to apply to this contract a rule not applied to other contracts.

Leaving Pad in Drainage Gauze—Admissible Evidence—Defining "Operation"

(Barrett's Administrator v. Brand (Ky.), 201 S. W. R. 331)

The Court of Appeals of Kentucky, on the second appearance before it of an appeal from a judgment for the defendant, affirms such judgment, in this action for alleged malpractice in an operation for chronic ovaritis. The court says that the patient showed signs of dissolution, and the cavity was hurriedly closed up to prevent it. A gauze drainage was arranged, and in it was one of the gauze pads, which was discovered four days later by the wound being opened up, at which time some of the parts, including some of the smaller intestines, were found to be inflamed and the patient shortly died. The chief act of negligence complained of was that of leaving the pad in the patient; but under the evidence and instructions of the court the jury found that this was not an act of negligence, or, if it was, it could not be termed the proximate cause of the patient's death.

It was insisted that there was error in permitting the professional witnesses to state, in substance, that the case was practiced according to the approved methods of the medical profession, and that, according to the opinions of those witnesses, the patient, in her diseased and run-down condition, would have died, and as a matter of fact did die, from those conditions, notwithstanding there might have been negligence in the manner complained of. It is, of course, fundamental that although an act may be negligent and involve a violation of duty, still, before a cause of action can be predicated thereon, the injury flowing therefrom must have been the proximate result of such derelictions. While it was not denied in this case that the pad was overlooked and left in the patient's body, yet it was clear that it was confined in the drainage gauze, which was an essential and necessary part of the operation, and it was therefore not in a condition to produce injurious consequences. But, however that might be, the rule is that while an expert witness may not take the place of the jury by stating whether certain acts constitute negligence, he may give his opinion in regard to matters which require scientific or specialized knowledge or experience, and for which the general common sense and practical experience of the jury are inadequate. The defendant's expert witnesses were permitted to state whether in their opinion the case was practiced according to the approved methods of surgery, but they were not asked, nor were they permitted to state, whether any particular act done or omitted to be done was or was not a careless or negligent one. According to the court's view, there is quite a distinction between whether a case has been practiced according to the rules of surgery and whether those rules or any of them are dictated by the soundest prudence and the most careful considerations. A case might be practiced according to such approved methods of surgery, and still not be characterized by careful and prudent action, and the court is clearly of the opinion that the complained of questions and answers did not invade the province of the jury and were proper subject-matters of injury of the expert witnesses.

Objection was made to evidence given by some of the assisting physicians concerning statements made by the defendant relating to the conditions which he found, and other subjects connected with the operation, during and while he was performing it. But this objection was untenable because the evidence complained of constituted a part of the res gestae or essential circumstances of the case growing out of the main transaction, which was the operation, and serving to explain it.

It was claimed in regard to the instructions that the court should have defined what constituted an operation, that is, that the court should have said to the jury in its instructions that the operation commenced at the beginning of making the incision and ceased when the incision was closed; but this court does not regard the term "operation" to be one of such technical meaning as to require a definition at the hands of the court. Every act necessary to its performance is included within the known meaning of the term.

Burden of Proof in Prosecution for Unlawfully Practicing Medicine

(Denton v. State (Tex.), 201 S. W. R. 183)

The Court of Criminal Appeals of Texas, which reverses a judgment of conviction of defendant Denton and remands the cause, says that the conviction was for practicing medicine in violation of Article 750 of the Penal Code, which makes it unlawful for any one to practice medicine "who has not registered in the district clerk's office of the county in which he resides, his authority for so practicing, . . . verified by oath." The statute also contains a statement that the clerk shall indorse on the certificate the fact that the oath has been made and recorded, and concludes as follows:

> The holder of the certificate must have the same recorded on each change of residence to another county, and the absence of such record shall be prima facie evidence of the want of possession of such certificate.

There was no evidence introduced to the effect that the defendant's authority had not been registered as required by the statute. It is not unlawful to practice medicine, but it is unlawful to do so without compliance with the statute. The offense is the practice of medicine without compliance with the statute, and the burden is on the state to prove the offense. There will be found decisions of other states holding that, under certain circumstances, the burden of making proof of authority to practice medicine is not on the state because a fact within the peculiar knowledge of the accused. Such is not the case here, as the statute itself prescribes a rule of evidence making the absence of the record prima facie evidence of the want of such certificate; and requiring that the certificate be recorded in the county in which the accused is residing at the time renders it easy for the state to make the proof of records of the particular county. The failure to make the proof in this instance characterized the evidence as insufficient. But the defendant's suggestion that the evidence showed that the occupation in which he was engaged was that of a masseur and exempted by Article 754 of the Penal Code from the provisions of Article 750 could not, the court thinks, be sustained as a matter of law. The character of his occupation was a question of fact.

Society Proceedings

COMING MEETINGS

American Association of Railway Surgeons, Chicago, Oct. 16-18.
American Public Health Association, Chicago, Oct. 14-17.
Assn. for S. & P. of Inf. Mort., Asheville, N. C., Nov. 11-14, 1918.
Delaware State Medical Society, Wilmington, Oct. 8.
Mississippi Valley Medical Assn., St. Louis, Mo., Oct. 2-4, 1918.
New Mexico Medical Society, Albuquerque, Oct. 7-8.
Ohio State Medical Association, Columbus, Oct. 1-3.
Southern Medical Association, Asheville, N. C., Nov. 11-14, 1918.
Vermont State Medical Society, Burlington, Oct. 10-11.
Virginia State Medical Society, Richmond, Oct. 22-25.
West Virginia State Medical Association, Martinsburg, Oct. 1-3.
Wisconsin State Medical Society, Milwaukee, Oct. 2-4.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

September, 1918, **16**, No. 3

1 *Immunity Reactions in Hydrated and Concentrated Tissue. F. W. Schlutz, Minneapolis.—p. 135.
2 Congenital Atresia of Esophagus: Report of Four Additional Cases. J. Brennemann, Chicago.—p. 143.
3 Kala-Azar in Child (the First American Case). F. B. Talbot and A. B. Lyon, Boston.—p. 154.
4 *Cure of Syphilitic Meningitis (Developed After Head Injury) by Arsphenamin and Mercury. I. M. Snow, Buffalo.—p. 161.
5 Psychogenic Disturbances in Childhood and Their Treatment. A. Strauch, Chicago.—p. 165.
6 Head Shaking with Nystagmus in Infants. C. Herrman, New York.—p. 180.
7 *Effect of Injections of Pituitary Solution on Urinary Output in Case of Diabetes Insipidus. S. W. Clausen, St. Louis.—p. 195.

1. Immunity Reactions in Hydrated and Concentrated Tissue.—The work Schlutz reports was undertaken to show whether there was any difference in the defensive mechanism of hydrated or concentrated tissue, using determinations of immune reactions as an index. The lysin reaction was compared in fifteen fat animals and eighteen lean animals. The animals were immunized against blood cells by intraperitonal inoculations. About 0.25 c.c. of washed blood cells were injected intraperitoneally at from two to three day intervals. Two weeks following the third or fourth injection the animals were exsanguinated, the blood allowed to clot, and then centrifuged in order to separate the serum from the clot. The serum was then diluted with salt solution 1:10, and its lytic titer determined in the usual way. The precipitin reaction was carried out on eleven fat and eleven lean animals. The animals were treated with from 0.25 to 0.5 c.c. of ascitic fluid or human blood serum intraperitoneally as was done with the lysin pigs. The precipitin titer of the serum was then determined by the dilution method. The agglutination was determined in seven fat and seven lean animals. The procedure was much the same as in the precipitin reaction. Pigs were inoculated intraperitoneally with a twenty-four hour killed culture of the typhoid bacillus. Four injections were made at three or four day intervals. Ten days following the last injection the titer of the serum was determined by the dilution method. The lysin reaction was negative or nearly so in practically all of the fat animals, but was positive, sometimes to a marked degree, in over 60 per cent. of the lean pigs. The precipitin reaction was uniformly negative in both the fat and lean series. The agglutinin reaction, while present in only 11 per cent. of the fat animals, was positive in over 70 per cent. of the lean animals. The lysin and agglutinin reaction would seem to indicate that there is a difference in favor of concentrated tissue and that the theoretical considerations expressed by Czerny and other observers are substantially correct.

4. Syphilitic Meningitis Cured by Arsphenamin and Mercury.—A boy, 10 years of age, was well up to March 1, 1917, when he fell from the roof of a standing freight car, striking on his head. After the accident he seemed in great pain for several hours. During the night he had a chill and vomited until morning. Two weeks later he commenced to have crying attacks and twitching and pain in the left arm. These emotional attacks increased in severity and were associated with convulsions, which occurred every second night. Four months after the injury (July 10) the patient entered the hospital as a case of epilepsy. During the first ten days of his stay he had one convulsion, frequent screaming attacks and periods of maniacal excitement. He cried, swore and talked incoherently, and complained of pain and muscular twitching in his left arm. After a few days it was noticed that his movements were awkward and constrained; that he held his head and back very rigidly, the head being inclined to the right. The knee jerks were very active; ankle clonus of right leg; Kernig sign present, most marked on right side;

muscles of arms and legs very spastic. The pupils were widely dilated; reacted to accommodation but not to light. There was a double optic neuritis of 2 diopters, each side. Leukocytes, 9,350; hemoglobin, 80 to 90 per cent. The spinal fluid contained 466 cells per cubic millimeter. Globulin and albumin were each + + + +; Wassermann, + + + +. The father and mother each showed a Wassermann + +. The child was evidently suffering from a syphilitic cerebrospinal meningitis. He was given daily inunctions of mercury and arsphenamin every one or two weeks. After the first dose of arsphenamin there was a prolonged chill and fever of 102 F., the only rise of temperature in the disease. About December 24, the Wassermann was negative, and the optic neuritis had disappeared. The boy was sent home and attended school regularly. In April he complained of frequent momentary headache. The spinal fluid, however, was negative to the Wassermann and colloidal gold tests. About May 1, the optic disks were normal. On May 14, fourteen months after the beginning of symptoms, the child was free from all symptoms and had been for seven months. Neither the parents nor the child had any symptoms of syphilis, hereditary or acquired. The fall on the head acted as a provocative agent causing cerebrospinal symptoms in a case of presumably latent hereditary syphilis. The lesion in the cerebrospinal meninges was probably a proliferative gummous leptomeningitis involving the cortex and spinal meninges; also an ependymitis with an increase of cerebrospinal fluid and some hydrocephalus. The choked disks were due to intracranial pressure from fluid and not to a direct inflammation of the optic nerve. Decompression and aspiration were followed by no immediate relief save that the lessening of intracranial pressure gave the cerebral circulation a little more freedom. The patient was very responsive to treatment; the acute symptoms lasted about three months. Mercurial inunctions were given every day for five months and arsphenamin at first every week; later every two weeks.

7. **Effect of Pituitary Solution on Urinary Output in Diabetes Insipidus.**—A study was made by Clausen of the urinary output of a 9½ year old boy suffering from diabetes insipidus, as influenced by injections of pituitary solution. Following injections of from 0.25 to 1 c.c. of surgical pituitary solution, there is a marked diminution of the urine volume. This diminution persists for from five to six hours, sometimes much longer. The volume of night urine is reduced when pituitary solution is injected at any time on the preceding day. The hourly rate of elimination of chlorids is always reduced after injections of pituitary solution. The hourly rate of elimination of urea is usually only slightly, if at all, reduced by injection of pituitary solution. The hourly rates of elimination of creatinin and uric acid are only slightly reduced by injection of pituitary solution. The hourly rate of elimination of titratable acids in the urine is only slightly influenced by these injections. The hourly rate of elimination of no substance studied is increased by injections of pituitary solution. When the hourly ingestion of water and sodium chlorid or urea is maintained at a constant high level, the urea elimination is quite uninfluenced by the injection of pituitary solution, whereas, the chlorid elimination is considerably diminished, and the water elimination very much diminished. Pituitary solution injections in diabetes insipidus control urine output primarily and thirst secondarily.

American Journal of Obstetrics and Diseases of Women and Children, York, Pa.

September, 1918, 78, No. 3

8 *Significance of Fever at Time of Labor. J. M. Slemons, New Haven, Conn.—p. 321.
9 *Cystocele: Review of Literature, Report of an Operation for Its Relief. R. M. Rawls, New York.—p. 328.
10 *Cancer of Cervix Complicating Triplet Pregnancy. B. P. Watson, Toronto, Canada.—p. 347.
11 Pathogenesis and Further Growth of Carcinoma of Uterus in Relation to Clinical Symptoms and Early Diagnosis. I. C. Rubin, New York.—p. 353.
12 Elusive Ulcer of Bladder. Twenty-Five Cases of Rare Type of Bladder Ulcer. G. L. Hunner, Baltimore.—p. 374.
13 Treatment of Puerperal Blood Stream Infections with Arsenobenzol; Report of Cases. H. A. Miller and S. A. Chalfant, Pittsburgh.—p. 395.
14 *Graduate Degree in Obstetrics and Gynecology. J. C. Litzenberg, Minneapolis.—p. 404.
15 *Study of Fifteen Hundred Selective Cases of Myomata Uteri. L. Broun, New York.—p. 410.
16 *Final Results of Roentgen Ray Treatment of Fibroids of Uterus. J. Brettauer, New York.—p. 415.
17 Use of Neutral Solution of Chlorinated Soda in Suppurative Conditions Within Peritoneal Cavity. R. R. Huggins, Pittsburgh.—p. 423.
18 Study of Dystrophy Adiposa Genitalis in Women. E. A. Schuman, Philadelphia.—p. 428.
19 Complete Laceration of Perineum. G. M. Boyd, Philadelphia.—p. 434.
20 Two Cases of Placenta Previa with Identical History, Suggesting Common Etiologic Factor. J. S. Taylor, Washington, D. C.—p. 438.

8. **Fever at Time of Labor.**—The histologic picture presented by the placenta was studied by Slemons in thirty-four cases. Typically, the bacteria are found in the subamniotic connective tissues where they come in contact with the large fetal blood vessels which cross the surface of the placenta. Occasionally, it is possible to demonstrate bacteria in the act of penetrating the walls of the vessels. In most instances the epithelium covering the villi is intact; the capillaries within the villi are normal and bacteria are not demonstrable on the surface or in the interior of the villi. Under these circumstances, it is evident that the infection does not proceed from the maternal circulation and does not pass through the walls of the villi. Bacteria enter the placenta by way of the amniotic membrane and the amniotic fluid. Generally, the latter becomes infected because the membranes rupture prematurely, labor is prolonged and repeated vaginal examinations are made. In one series of 600 labors, Slemons noted placental bacteremia in ten instances; and in another series of 1,000 labors it occurred twenty-four times. On this basis, he estimates its frequency as 2 per cent. of all labors at term. In other words the incidence of placental bacteremia and of intrapartum fever is identical. Slemons urges that as a matter of routine, the placenta should be subjected to careful examination, especially in hospital practice. The examination should not be limited to the gross study of the organ to determine its weight, dimensions and complete separation from the uterus. Portions should be selected for microscopic study. Placental bacteremia explains a great many of the fetal and infant deaths heretofore impossible of explanation.

9. See abstract in THE JOURNAL, April 13, 1918, p. 1118.

10 and 14. Abstracted in THE JOURNAL, June 22, 1918, p. 1976.

15. **Myomata Uteri.**—All of the 1,500 patients whose cases were analyzed by Broun had some form of hysterectomy or myomectomy. As a result of the operations, twenty-eight patients (1.86 per cent.) died; of these seven died from embolus, chiefly between the eighth and twentieth day, seven from peritonitis, and the remainder from various causes. Sixty-six malignant conditions were found. There were fifty-eight cases of associated ovarian pathology. There were 265 cases of associated tubal disease, the majority of which would have required at some time surgical interference. Tuberculous endometritis was present in two instances, and in 105 myomas, necrotic or calcareous changes were present. One hundred and sixty-seven chronic or subacute inflammatory appendixes were found. There were nine instances of associated extra-uterine pregnancy and fifty-one of normal pregnancy. Three hundred and fifty-five cases, 23.7 per cent., contraindicated the use of radium and roentgen ray. The average therefore of 23.5 per cent., or practically one out of every four patients seeking relief from symptoms resulting from the presence of uterine myoma, have also some other pathologic condition that would contraindicate the use of radium and roentgen ray. After a review of the cases and noting the coincident conditions, Broun is convinced that the symptoms on account of which the majority of patients entered the hospital were due in the greatest measure to conditions outside of the uterus and not to the presence of the tumor itself, unless it was from hemorrhage. That radium and roentgen ray have their field in gynecology is unquestionable. Broun believes, however, that this field should be limited to cases in which it is inadvisable to do any form of

operation and to hemorrhage of myopathic origin or from small and absolutely uncomplicated myomas of the uterus.

16. **Roentgen Therapy of Fibroids of Uterus.**—This report covers a series of thirty-two cases of fibroids up to Oct. 1, 1917, which were subjected to massive roentgen-ray exposures on account of severe menorrhagia. The tumors varied in size, some reaching above the umbilicus and filling the entire abdomen. All were under observation and the diagnosis positively established before treatment was instituted. Permanent amenorrhea resulted in twenty-five, or 78 per cent., and temporary amenorrhea in seven, or 22 per cent. Four of the seven patients were between 30 and 40 years of age and the character of the uterine bleeding was that of a scanty regular menstruation; in the other three, the flow was very irregular, small in amount and occurred at intervals of from three to six months. In nearly every case a decided reduction in the size of the uterus was perceptible; in some no vestige could be detected of former large fibroids. Brettauer concludes that at an age below 45 the roentgen-ray treatment for fibroids should not be the choice, but should be employed only when operative measures are not advisable or are refused. Between the ages of 45 and 55, roentgen-ray treatment should be the method of choice and no patient should be deprived of the right to undergo it. Uterine hemorrhages due to fibroids in women beyond the age of 55 should raise a suspicion of sarcomatous degeneration and operative measures are preferable to any other form of treatment.

Illinois Medical Journal, Chicago

August, 1918, **34**, No. 2

21 **Work of American Medical Association in World War.** J. W. Van Derslice, Chicago.—p. 57.
22 **Plastic Surgery.** L. Ryan, Chicago.—p. 64.
23 **Diagnosis and Treatment of Tuberculosis of Kidney.** D. N. Eisendrath, Chicago.—p. 71.
24 **Menopause from Standpoint of Mental Disorder.** F. P. Norbury, Springfield, and A. B. Dollear, Jacksonville.—p. 77.
25 **Auricular Fibrillation.** J. G. Carr, Chicago.—p. 83.
26 **Some Undesirable Results Produced by Some Present Health Laws as Now Enforced.** A. E. Mowry, Chicago.—p. 87.

Journal of Experimental Medicine, Baltimore

September, 1918, **28**, No. 3

27 **Bovine Mastitis: Relation of Hemolytic Streptococci to Udder Infections.** F. S. Jones, Princeton, N. J.—p. 253.
28 *Etiology of Epidemic Poliomyelitis. E. T. H. Tsen, New York.—p. 269.
29 **Production of Acid by Pneumococci.** G. E. Cullen and A. M. Chesney, New York.—p. 289.
30 *Influence of Temperature on Velocity of Complement Fixation Reaction in Syphilis. H. Noguchi, New York.—p. 297.
31 *Restorative Effect of Salts of Magnesium and Calcium After Lethal Doses of Sodium Oxalate. F. L. Gates, New York. p. 305.
32 *Urobilin Elimination in Normal and Anemic Dog. H. Dubin, Philadelphia.—p. 313.
33 **Modifications of Culture Media Used in Isolation and Differentiation of Typhoid, Dysentery and Allied Bacilli.** I. J. Kligler, New York.—p. 319.
34 *Experimental Test of Nuzum's Antipoliomyelitic Serum. H. L. Amoss and F. Eberson, New York.—p. 323.
35 **Pleomorphic Bacillus from Pneumonic Lungs of Calves Simulating Actinomyces.** T. Smith, Princeton, N. J.—p. 333.
36 **Optimum Hydrogen Ion Concentration for Growth of Pneumococcus.** K. G. Dernby and O. T. Avery, New York.—p. 345.
37 *Determination of Quantity of Secreting Tissue in Living Kidney. C. K. Watanabe, J. Oliver and T. Addis, San Francisco.—p. 359.

28. **Etiology of Epidemic Poliomyelitis.**—Streptococci have been isolated by Tsen and his associates from the central nervous system of monkeys dead of poliomyelitis and from the central nervous system of monkeys dead of other causes, as well as from the brains of normal rabbits. Streptococci isolated from poliomyelitic monkeys do not differ from those isolated from monkeys and rabbits dead from other causes. An etiologic relation has not been established between streptococci and poliomyelitis. Several times an organism was isolated that was similar to the globoid bodies culturally, morphologically, and in staining reaction, but it could not be carried along for more than three generations. The pathogenicity of these organisms has therefore not been tested on monkeys. Typical lesions of poliomyelitis were not produced in rabbits by the injection of either the poliomyelitic virus or streptococci.

30. **Effect of Temperature on Complement Fixation Reaction in Syphilis.**—Noguchi says that the examination of syphilitic serum or cerebrospinal fluid can be made at any temperature between 23 and 37 C. The velocity of the fixation reaction, including the fixation of complement and subsequent hemolysis, is greater at a higher temperature, the optimum point being 37 C. The maximum reaction is also reached, however, when the mixture of lipoids, syphilitic serum, and complement is allowed to stand for a long enough period at a lower temperature, the minimum thermal point being near 23 C. For the optimum temperature (37 C.) an incubation of thirty minutes is sufficient, while for the minimum temperature (23 C.) two hours are necessary. At the temperature 30 C. the reaction proceeds with moderate velocity and is complete within sixty minutes. Guinea-pig complement gave a sharper reaction with the serums which contained less than one unit of the fixing substance. Fixation is complete, however, at any of the three temperatures within twenty minutes when there are more than two units present. A serum containing one unit of fixing substance will complete reaction within thirty minutes at 37 C., sixty minutes at 30 C. and two hours at 23 C., irrespective of whether human or guinea-pig complement is used. For many reasons a properly adjusted thermostat for 37 C. is recommended for conducting the serum diagnosis of syphilis when possible, but it should not be overlooked that at a temperature near 30 C. an entirely reliable result can be obtained without a special incubator. Even at a temperature as low as 23 C. the test can be carried out if sufficient length of time is allowed. These conclusions refer only to the systems in which the acetone insoluble fraction of tissue lipoids is used as antigen.

31. **Restorative Effects of Salts of Magnesium and Calcium.**—The experiments presented by Gates brought out the following facts. Intramuscular injections of sodium oxalate into rabbits in doses of 0.18 and 0.2 gm. proved to be invariably fatal, death generally occurring in a comparatively short time. The symptoms consisted in excitation and tonic and clonic convulsions of diminishing strength if death was delayed. Some animals succumbed in the first convulsion. From the experiments in which magnesium or calcium was added, it was evident that massage of the site of the oxalate injection is unmistakably an aggravating factor. In the experiments with the addition of magnesium or calcium, doses of 0.2 gm. of ovalate were used, with or without massage. There was practically in all cases clear evidence that the effect of the additional injections was in the nature of an antagonism to the oxalate effects. An injection of 0.6 gm. of magnesium not only alleviated or abolished the excitation and convulsions, characteristic of oxalate poisoning, but also reduced the mortality by 30 per cent. When the dose of magnesium was only 0.4 gm. per kilogram of body weight and the site of the injection of the oxalate was not massaged—a condition in which 0.2 gm. of oxalate alone was invariably fatal—the mortality was reduced by 80 per cent. The favorable effect of injections of calcium chlorid depended on the quantity injected and the length of the interval elapsing between the injection of the oxalate and that of the calcium. When the site of the oxalate was massaged and only 5 c.c. of the calcium solution were injected, the animals succumbed to the oxalate poisoning. When 10 c.c. of calcium were given one minute after the oxalate injection, the animals survived. When the site of the oxalate injection was not massaged, then even 5 c.c. of the calcium were sufficient to save life.

32. **Urobilin Elimination.**—Dubin found that the output of urobilin is increased in experimental trypanosome anemia, presumably as a result of the increased blood destruction. The administration of arsphenamin during the anemic period, if it checks the blood destruction, reduced the urobilin elimination, but this result does not follow unless the blood picture improves. Following splenectomy in the normal dog an increase in the urobilin elimination of varying degree occurs, the significance of which is doubtful. Splenectomy during the period of anemia does not cause a decrease in

urobilin elimination. The experiments support the view that the elimination of urobilin may be considered as an index of blood destruction, but they do not explain the decrease in the elimination occurring in man in certain forms of hemolytic anemia following splenectomy.

34. **Nuzum's Antipoliomyelitic Serum.**—The value, in general, of antistreptococcic serums in combating streptococcus infections is unproved. The antistreptococcic serum of Nuzum and Willy has failed to show in the monkey neutralizing or therapeutic power when applied by their methods against small doses of the virus of poliomyelitis. Under the same conditions the serum of monkeys recovered from experimental poliomyelitis proved neutralizing and protective. The experimental and other evidence adduced by those who regard the streptococcus as playing an essential part in the pathology of epidemic poliomyelitis and the antistreptococcic serums as exhibiting therapeutic properties for man and monkeys is regarded by Amoss and Eberson as being imperfect and inconclusive.

37. **Quantity of Secreting Tissue in Living Kidney.**—Under the strain induced by the administration of urea, the authors were able to demonstrate the relation between the degree of anatomic damage in the kidney and the degree of defect in the urea-excreting capacity induced by uranium. The closest correlation between structure and function was obtained when the ratio between the urea content of the urine and of the blood was used as the measure of function.

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38 *Precipitin Reaction in Urine in Pneumonia. W. J. Quigley, Chicago.—p. 217.
39 *Effect of Culture Medium on Agglutinative Properties of Bacillus Paratyphosus B. R. Victorson, Chicago.—p. 220.
40 *Methyl Red and Voges-Proskauer Reactions with Special Reference to Routine Water Analysis. W. D. Stovall and M. S. Nichols, Madison, Wis.—p. 229.
41 *Respiratory Stimulant and Toxic Substance Extractable from Lung Tissue. W. B. Wherry and D. M. Ervin, Cleveland. —p. 240.
42 Food Accessory Factors (Vitamins) in Bacterial Culture. D. J. Davis, Chicago.—p. 248.
43 *Sporotrichosis Following Mouse Bite. J. J. Moore and D. J. Davis, Chicago.—p. 253.
44 *Cultivation of Tubercle Bacilli from Sputum by Petroff's Method. H. J. Corper, L. Fiala and L. Kollen, Chicago.—p. 267.
45 *Brilliant Green Agar and Other Plating Mediums for Isolation of Typhoid and Paratyphoid Bacilli, from Feces. C. Krumwiede, Jr., L. A. Kohn, A. G. Kuttner and E. L. Schumm, New York. —p. 275.
46 *Thermal Death Point and Limiting Hydrogen Ion Concentration of Pathogenic Streptococci. S. H. Ayers, W. T. Johnson, Jr., and B. J. Davis.—p. 290.
47 *Study of Neutralizing Properties of Antipoliomyelitic Horse Serum. J. W. Nuzum, Chicago.—p. 301.
48 *Protective Properties of Antipoliomyelitic Horse Serum. J. W. Nuzum, Chicago.—p. 309.

38. **Precipitin Reaction in Urine in Pneumonia.**—Quigley has made study of the sputum for the type of infection, and of the urine for precipitin reactions in 100 cases of lobar pneumonia due to the pneumococcus, occurring in Chicago during the winter of 1917-1918. There were 33 instances of infection with pneumococci of Type I, 36 of Type II, 13 of Type III, and 18 of Type IV. Of eighty-two cases of Types I, II and III, the urine of sixty-seven showed at some time during the disease a specific precipitin reaction. The strength of the reaction gradually increased during a period of three or four days, persisted from two to nineteen days, and gradually disappeared. It was present during the third week in a few convalescents when discharged from the hospital. Thirty of the 100 patients died. The group mortality was approximately 39, 36, 8 and 17 per cent., respectively, for the four types. Of the twenty-seven deaths due to Types I, II and III infections, twenty-three showed a precipitin reaction in the urine; four were negative. Of the sixty-seven showing a precipitin reaction twenty-three, or 34 per cent., died. Of the fifteen with negative reactions four, or 27 per cent., died. It therefore appears that a large percentage of fatal cases of pneumonia have a substance in the urine capable of giving a specific precipitin reaction with antipneumococcus serum, but that the presence of this substance in the urine is not of great unfavorable prognostic value, as the mortality when it could not be demonstrated was only slightly lower than when it was present.

39. **Effect of Culture Medium on Agglutinative Properties of B. Paratyphosus B.**—The effect of the medium on the agglutination of *B. paratyphosus* B was studied by Victorson. The mediums tested were sugar-free agar as a control medium, 10 per cent. rabbit blood agar, Loeffler's serum, 1 per cent. dextrose and 1 per cent. lactose broth and agar, potato, and Jordan's nonprotein medium to which was added 1.5 per cent. agar. The reaction of the sugar mediums and sugar-free agar was 0.5 per cent. acid to phenolphthalein. The organism was transferred forty-four times. The following results were obtained: Each strain, as a rule, agglutinated better with its homologous serum than with any heterologous serum. The serum produced by the potato strain, however, was an exception, since it agglutinated the organisms grown in dextrose broth and on Loeffler's serum better than its own strain. The variations in agglutination were not marked, consisting merely of slight differences in the highest dilutions to which the strains are agglutinated.

40. **Methyl Red and Voges-Proskauer Reactions.**—In the routine analysis of sixty-eight water samples from private and public supplies received from many sections of the state Stovall and Nichols isolated 200 cultures which fulfilled the requirements of the completed test for members of the colon group of organisms of the Standard Methods of Water Analysis. They found that 120 of these reacted acid to methyl red, thirty-eight gave a Voges-Proskauer positive reaction, and that forty-two gave irregular reactions. The intensity of these reactions varied considerably.

41. **Toxic Substance from Lung Tissue.**—The method described by Wherry and Ervin of producing accelerated respiration or death was discovered accidentally in an experiment with tuberculous tissue from a rabbit's lung. A piece of the tissue, 6 by 8 mm., filled with tubercles, was ground up with sand, suspended in 8 c.c. of 0.9 per cent. sodium chlorid solution, centrifuged to remove coarse particles, and 1 c.c. of the supernatant fluid injected intravenously into another rabbit, which immediately fell on its side with marked inspiratory dyspnea, followed by convulsions and opisthotonos, and died a few second later. Rabbit lung is more fatal for the rabbit than for the guinea-pig and vice versa. Many of the symptoms of anaphylactic shock are produced—the acceleration of the respiration and peripheral irritation, both best shown by sublethal doses, the inspiratory dyspnea, the convulsions, the tolerance produced by graded repeated doses, the delay in the coagulation of the blood, all make one think of a possible relationship to anaphylaxis, but the lungs collapse on opening the thorax. Atropin does not protect. Morphin does not protect. Similar extracts of rabbit liver, kidney, ileum and spleen were harmless for rabbits. The lethal agent will not pass Berkefeld filter N at 600 mm. pressure. It is removed by animal charcoal. It is not extracted by ether. It can be removed by centrifugal force (36,000 revolutions per minute) and is apparently composed of, or adsorbed to, particles visible under the microscope. By beginning with a sublethal dose, and then injecting at short intervals thereafter larger doses, a rabbit will survive, without symptoms, several lethal doses. The authors are inclined to favor the idea that colloidal particles are responsible for the lethal action.

43. **Sporotrichosis Following Mouse Bite.**—An instance of an infection with *Sporotrichum schenckii* following the bite of a field mouse in North Dakota is described by Moore and Davis. The infection has persisted for about eighteen months, improving with administration of iodid and relapsing when the iodid is discontinued. Repeated sporo-agglutination tests gave positive results at serum dilutions varying from 1:320 to 1:80. At one time, when the patient had almost recovered, the test was slight at 1:20, but later became stronger. In general this test parallels the clinical course. Complement fixation tests made at various times generally yielded definitely positive results, corresponding thus to the agglutination

tests. In the icebox the antibodies in the serum retain their activity for over one year.

44. **Cultivation of Tubercle Bacillus from Sputum.**—Investigations were made by Corper and his associates to obtain cultures of tubercle bacilli for the study of their virulence and to gain information on the various steps involved in the technic of cultivating tubercle bacilli according to the method devised by Petroff. The routine cultivation of tubercle bacilli from microscopic positive sputum by Petroff's method, seeding two gentian violet egg medium tubes from each sputum, resulted in obtaining positive macroscopic cultures of varying grades on primary culture from 144 (27.3 per cent.) of 526 sputums. There was noted no relationship between the number of bacilli found in the original sputum and the percentage of positive growths obtained or their intensity. Egg medium prepared as directed by Petroff with fresh beef juice revealed no particular advantages over mediums in which was substituted sodium chlorid, beef extract, and peptone as used in ordinary broth. The inspissation of the Petroff gentian violet egg medium on three successive days also proved to have no advantages over a single autoclaving. Petroff's findings that the gentian violet egg medium is not suitable for the continued cultivation of tubercle bacilli was corroborated (24 per cent., six of twenty-five, failing to grow on two tubes in the first seeding and 43 per cent., six of fourteen, failing to grow on two tubes in the second seeding).

45. **Isolation of Bacilli of Typhoid Group from Feces.**—Since describing a method of preparing a brilliant green agar plating medium for the isolation of typhoid and paratyphoid bacilli from feces, the number of specimens examined by the authors has reached 7,111. Of this number 920 were endo-positive and 1,235 were dye-agar positive. The results in the isolation of *B. paratyphosus* have been somewhat better than in the isolation of *B. typhosus*.

46. **Thermal Death Point of Pathogenic Streptococci.**—The thermal death point of twenty-seven strains of pathogenic streptococci from pathologic sources was never higher than 60 C. (140 F.) when heated in milk for thirty minutes. This fact seems to indicate that pathogenic streptococci are destroyed by the proper pasteurization of milk at 60 C. (140 F.) for a period of thirty minutes.

47. **Neutralizing Properties of Antipoliomyelitic Serum.**—Nuzum claims that antipoliomyelitic horse serum, prepared by repeated intravenous injections of the coccus isolated from the central nervous system in human and monkey poliomyelitis possesses neutralizing properties against the virus of poliomyelitis. The neutralizing properties of antipoliomyelitic horse serum in vitro for the virus of poliomyelitis afford a convenient and satisfactory test of the potency of this serum for use in the treatment of poliomyelitis. The neutralizing, protective and curative properties of antipoliomyelitic horse serum for experimental poliomyelitis of monkeys are in direct accord with the favorable results observed in the serum treatment of human poliomyelitis and argue strongly for the etiologic relationship of the coccus to this disease.

48. **Protective Properties of Antipoliomyelitic Serum.**—Nuzum has applied the therapeutic test, recently devised by Amoss and Eberson, to fresh samples of immune horse serum prepared by injections of the poliomyelitic coccus in the horse. Under the conditions of the test, three monkeys were completely protected while the fourth animal developed mild symptoms on the fourteenth day and subsequently recovered completely. The control monkeys receiving normal horse serum all developed a fatal poliomyelitis and died as early as the fourth day following injection of virus. Fresh immune horse serum protected perfectly against infection while pooled immune monkey serum served only to delay the onset of a fatal infection.

Kentucky Medical Journal, Bowling Green

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49 Toxemic Convulsions. B. F. Robinson, Berea.—p. 418.
50 Case of Dementia Praecox. H. B. Scott, Louisville.—p. 420.
51 Two Obscure Cases of Intracranial Infection. A. O. Pfingst, Louisville.—p. 422.

Minnesota Medicine, St. Paul

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52 Changes Ahead. M. L. Burton, Minneapolis.—p. 327.
53 Differential Diagnosis and Modern Treatment of Idiopathic Pernicious Anemia. J. P. Schneider, Minneapolis.—p. 334.
54 Comparison of Various Tuberculin Tests in Childhood. E. F. Warner, St. Paul.—p. 337.
55 Medical Cooperation in Problem of War Syphilis. J. H. Stokes, Rochester.—p. 341.

New Orleans Medical and Surgical Journal

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56 Ruptured Gastric and Intestinal Ulcers. H. W. Kostmayer, New Orleans.—p. 125.
57 Society Largely Responsible for Some of Most Potent Factors of Nervous and Mental Diseases. J. C. King, Atlanta, Ga.—p. 132.
58 Vomiting in Infancy. L. R. DeBuys, New Orleans.—p. 141.
59 Minor Matters. H. D. Bruns, New Orleans.—p. 145.
60 Biologic Research on Wounds of War; Phenomena of Proteolysis in Wounds of War. A. Policard.—p. 154.

Pennsylvania Medical Journal, Athens

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61 Health Hazards to Women as Result of War Emergency. S. Semple, Harrisburg.—p. 661.
62 How Industrial Surgeon Can Best Cooperate with Government to Win War. E. Martin, Washington.—p. 665.
63 Nation's Neglect; Failure to Reconstruct and Rehabilitate Wounded in Industry. L. A. Shoudy, Bethlehem.—p. 668.
64 The Way Out. A. H. Samuels, Washington, D. C.—p. 671.
65 Hernia: Should It Be Classed as Compensable Injury or Disease? A. W. Colcord, Clairton.—p. 672.
66 Does Two Years' Experience with Workmen's Compensation Law of Pennsylvania Demand Its Amendment, and if So, How? From Viewpoint of the Board. H. A. Mackey, Harrisburg. —p. 684.
67 Id.: From Viewpoint of Physician. F. L. Van Sickle, Olyphant. —p. 687.
68 Id.: From Viewpoint of Insurance Company. W. H. Hotchkiss, New York.—p. 693.
69 Id.: From Viewpoint of Industry. C. B. Auel, East Pittsburgh. —p. 697.

Surgery, Gynecology and Obstetrics, Chicago

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70 *Injuries of Cervical Spine. J. Ransohoff, Cincinnati.—p. 241.
71 Utility of End-to-End Anastomosis Between Small and Large Intestine. D. C. Balfour, Rochester, Minn.—p. 249.
72 Etiology of Ureteral Calculus. G. L. Hunner, Baltimore.—p. 252.
73 Recurrence of Stone in Kidney. C. R. Robins, Richmond, Va.— p. 270.
74 *Management of Subparietal Injuries of Kidney; Report of Cases. J. M. Mason, Birmingham, Ala.—p. 277.
75 Medical Profession and Great War. W. D. Haggard, Nashville, Tenn.—p. 281.
76 *Treatment of Certain Forms of Subacute Pancreatitis. S. H. Watts, University, Va.—p. 286.
77 Surgery of Soft Parts, Bones and Joints, at a Front Hospital. E. H. Pool, B. J. Lee and P. A. Dineen, France.—p. 289.
78 Transplantation of Bone in Repair of Cranial Defects. C. H. Gilmour, Toronto.—p. 311.
79 Problems of Reconstruction of Hand. A. Steindler, Iowa City, Iowa.—p. 317.
80 *New Operation for Prolapse of Uterus. C. U. Collins, Peoria. —p. 326.
81 *Practical Value of Electric Light in Treatment of Infections. A. J. Ochsner, Chicago.—p. 328.
82 Bone Graft and Arthrodesis in Reconstruction Surgery. F. G. Dubose, Selma, Ala.—p. 331.
83 Technic of Ureterovesical Anastomosis. H. D. Furniss, New York. —p. 339.
84 *Bunion, Its Causes and Cure. H. A. Robinson, Kenosha, Wis. —p. 343.
85 Cranial Decompression for Head Injuries Accompanied by Signs of Increased Intracranial Pressure. R. L. Payne, Jr., Norfolk, Va.—p. 345.
86 *New Operation for Cure of Femoral Hernia. J. W. Dowden, Edinburgh, Scotland.—p. 348.

70 and 74. Abstracted in THE JOURNAL, Feb. 2, 1918, p. 341.

76. Abstracted in THE JOURNAL, Feb. 9, 1918, p. 414.

80. **Operation for Prolapse of Uterus.**—Collins sutures a transverse strip of the anterior aponeurosis of the abdominal rectus into the cervical trough formed after a supravaginal hysterectomy. The stumps of the broad ligaments are sutured to the posterior surface of the cervix and to each other. The cervix is thus held securely in the abdominal wall by a strip of aponeurosis that will not stretch and cannot come loose

from its attachments, because they are natural and have not been separated.

81. **Value of Electric Light in Treatment of Infections.**—Ochsner directs attention to the great value of electric light rays, especially because of their influence in controlling pain due to infection. He has used this method in seventy-eight cases of infection of the extremities, and invariably the pain has disappeared promptly. Sixty-one of these cases were infections of the upper extremity, and seventeen of the foot. Equally satisfactory results were obtained in the use of the electric light in treating peritonitis following abdominal sections for the relief of suppurating conditions such as appendiceal abscesses, perforated gallbladder, etc., also in tuberculous and gonorrheal joint infections, in carbuncles and furuncles. In case of roentgen-ray burns the light treatment causes a rapid improvement of the conditions.

84. **Bunion, Its Causes and Cure.**—Robinson claims that enlarged sesamoids are the cause of bunions. The two sesamoids which develop normally under the head of the first metatarsal bone enlarge and grow downward and outward toward the head of the second metatarsal, and as the plantar fascia is tough it resists the sesamoids and with each step pushes them upward and inward and causes the head of the metatarsal to give in the line of least resistance, which is upward and inward. Because there is no pressure inward on the proximal phalanx of the great toe, it is held firmly by the strong ligaments and gradually the head of the metatarsal is displaced inward. This turns the great toe outward toward the other toes until in may cases the head is almost completely dislocated from the articular surface of the phalanx. Roentgenograms show that this dislocation corresponds to the size of the sesamoids. Bunion occurs on top of the foot when the sesamoids are enlarged and point straight downward toward the sole of the foot. The tough plantar fascia forces the sesamoids upward against the head of the metatarsal so as to displace it perpendicularly upward and the phalanx being held firmly to the tendon is not displaced. This produces a bunion on top of the foot. The cure in both cases is the same, namely, removal of both sesamoids. By way of preventive surgery, Robinson advises the removal of both sesamoids as soon as the first symptoms of bunion are discovered.

86. **Operation for Femoral Hernia.**—The principle of Dowden's operation is the placing of a ball of fat or other tissue, bigger than the abdominal aspect of the femoral ring, and fixing the ball in situ, the ligated sac of the hernia being displaced above the ball. The result of this is that the greater the intra-abdominal pressure, the more this ball is forced against the femoral ring, this effectually closing it.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Indian Journal of Medical Research, Calcutta

April, 1918, 5, No. 4

1 *Study of Kala-Azar. J. W. Cornwall and T. K. Menon.—p. 541.
2 Some Results in Kala-Azar. R. Knowles.—p. 548.
3 Bilharziosis Among Animals in India. Life-Cycle of Schistosomum Spindalis. W. G. Liston and M. B. Soparkar.—p. 567.
4 *Biochemistry of Postcholeraic Uremia. Blood in Cholera Patients. J. A. Shorten.—p. 570.
5 *Action of Liquor Calcis on Comma Vibrios. J. C. Mukherji. —p. 608.
6 Thorax and Wing of Mosquito (Anopheles). B. Prashad.—p. 610.
7 Development of Dorsal Series of Thoracic Imaginal Buds of Mosquito; Phylogeny of Insects. B. Prashad.—p. 641.
8 *Margosic Acid and Its Salts in Syphilis and Skin Diseases. K. K. Chatterji and C. Ray.—p. 656.

1. Study of Kala-Azar.—Pure subcultures of the flagellates of *Leishmania tropica* and of *L. donovani* were readily obtained by Cornwall and Menon by inoculating N N N tubes from the stomachs of infected bugs up to ten days from the date of the feed. No subcultures of the flagellates of *L. donovani* could be obtained from the rectal contents of bugs from three to thirty-three days after an infected feed. No subcultures could be obtained from the rectal contents when the infected bugs had fed on a normal rabbit in the interval. No resistant forms could be detected microscopically in the rectal contents of bugs infected with *L. donovani*. Neither leukocytes nor erythrocytes remain stranded in the bug's sucking tube after a feed. The authors suggest that kala-azar may perhaps be transmitted by the rupture of an infected bug on an excoriated skin, but proof is wanting.

4. **Blood of Cholera Patients.**—A new method of preparing urease from Soya beans and new methods of determining the percentage of inorganic phosphates and chlorids in the blood serum are described by Shorten. Studying the blood of cholera patients Shorten found that there is a definite increase in the urea content of the blood in all cases of cholera of more than a few hours' duration. In cases which recover, there is an increase to a maximum in a few days, and then a gradual decline to normal. In fatal cases of postcholeraic uremia a very high percentage may be reached before death. On the other hand, retention of urea would seem to have nothing to do with the symptoms of this so-called uremia. The figures for nonprotein nitrogen follow those for urea more or less closely. It would appear that an excess of nitrogenous metabolites in the blood is not responsible for the symptoms in these cases. The observations on the variations of the alkalinity of the blood confirm the previous work of Sir Leonard Rogers. The occurrence of phosphatic retention in these cases is definitely established. It corresponds in a general way to diminution in the alkalinity—a high phosphatic content being usually found with low alkalinity and vice versa. Postcholeraic uremia is a misnomer. The condition really is a retention acidosis, as shown by the diminished alkalinity, phosphatic retention, and peculiar type of dyspnea. The concomitant retention of urea and other nitrogenous metabolites does not appear to be of any importance, except in so far as it denotes abeyance of the functions of the kidneys. Improvement in treatment resolves itself into measures directed toward controlling phosphatic retention.

5. **Action of Liquor Calcis on Comma Vibrios.**—It would appear from Mukherji's bacteriologic experiments that liquor calcis is distinctly inimical to the growth of comma vibrios if used in sufficient quantity.

8. **Margosic Acid and Salts in Syphilis and Skin Diseases.**—After passing the oil derived from Nim seeds (Margosa tree) through various chemical processes, a chemist obtained margosic acid and sent Chatterji 4 ounces of a 15 per cent. alcoholic solution. Later, he prepared the calcium and zinc salts of this acid. These were found to be insoluble in water. Local application of them ip powder, and as an ointment, prepared from them with petrolatum and lanolin, to syphilitic ulcers and tuberculous sinuses caused rapid healing. The ulcers showed a healthy healing margin after two or three applications. The chemist also prepared for Chatterji the sodium salt of the acid, sodium margosate. Intramuscular injections of this salt did not produce any toxic effects. Intravenous injections were followed by a sharp reactionary rise of temperature, but there was no other toxic effect. Investigations with the margosates show that along with their strong parasitotropic properties they have the advantage of possessing very low organotropic properties. The phenol co-efficient of the soluble salts of margosic acid has been determined to be only two. Laboratory experiments show, therefore, that the antibacterial or bactericidal property of the drug, is low, in vitro, but clinical evidence appears to show that this property is not inconsiderable in vivo. The Nim is a reputed remedy for skin affections and, in view of the parasitotropic properties of the margosates, they have been used in a number of cases of scabies, eczema and pemphigus with remarkably good results.

The margosates are strongly antiprotozoal in their action. A solution of 1 in 2,000 killed Paramecium instantly and a much weaker solution of 1 in 10,000 killed the flagellate Prowazekia. In the treatment of syphilis, clinical experience proved its value. Sodium margosate was given in solution, the doses varying from 0.01 to 0.325 gm., subcutaneously, intramuscularly or intravenously in the primary, secondary and tertiary stages of syphilis, also in parasyphilis and congenital syphilis. In the primary and secondary stages the

initial lesion and secondary manifestations disappeared under its influence much more readily than in untreated cases. In the late secondary and tertiary stages the skin lesion, gummas, etc., soon subsided. A case of parasyphilis showed marked improvement. In congenital syphilis, the condylomas, ulcers, eye lesions, etc., yielded rapidly to treatment with the margosates. Incidentally Chatterji observed some aspects of the physiologic action of the drug. For example, it caused leukocytosis which was maintained for over a week after a single injection. It is not known how the margosates produce these results.

Indian Medical Gazette, Calcutta

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9 Metamorphosis and Standardization of Licensed Medical Practitioner. R. Bryson.—p. 201.
10 Importance of Some Minor Eye Operations. J. N. Macphail.—p. 205.
11 *Treatment of Thirty Lepers with Sodium Gynecardate "A." E. Muir.—p. 209.
12 Case of Syphilitic Fever. E. H. Wright.—p. 213.
13 Some New Principles in Nutrition. R. F. E. Austin.—p. 214.
14 Forgotten Pages of Jail History. J. Mulvany.—p. 216.

11. **Leprosy Treated with Sodium Gynecardate "A."**—This report is made by Muir after three months' treatment. A 3 per cent. solution of sodium gynecardate "A" in distilled water, with 1 per cent. of pure phenol and 1 per cent. of sodium citrate, was prepared, and sterilized by boiling in a flask immersed in another vessel containing water. Of this solution, from 0.5 c.c. up to 5 c.c. was given thrice weekly, intravenously. Tablets of the same drug were given by mouth, but it was not always found possible to give these regularly, and so far as could be judged the oral administration made little or no difference. The principle adopted was to begin with 0.5 c.c. and increase the dose by 0.5 c.c. each time, giving the injections thrice weekly. Anesthesia was present in all the patients. There were marked tubercular nodules in twenty cases. One patient after a few injections developed dysenteric diarrhea and the treatment had to be stopped. He, however, made some improvement, and the treatment is being resumed with care. Three patients, who had been ill, five, four and eighteen years, respectively, have entirely lost all traces of anesthesia and the nodular swelling which was found in the last of these has practically disappeared. The most rapid progress was recorded in the youngest patients and in those who had been ill for the shortest time; but this latter does not always hold, as the disease may advance more rapidly in some cases than in others. Many of the patients felt very weak at the end of the three months, but they were extremely cheerful. Muir has used leprolin in the treatment of leprosy for some years, and obtained improvement in many cases and the entire disappearance of anesthetic patches in a few initial cases. The original gynecardate of soda prepared under Sir L. Rogers' instructions gave better results than leprolin. Sodium gynecardate "A," however, has given vastly superior results to either of these.

Annales de Médecine, Paris

March-April, 1918, **5**, No. 2

15 *Soldier's Gastritis with Hyperchlorhydria. M. Loeper and G. Verpy.—p. 97.
16 *Central Neurofibromatosis. G. Humbert and F. Naville.—p. 108.
17 *Wounds of Spine with Intact Dura. Guillain and Barré.—p. 115
18 Typhoid Lesions in Arachnoid. R. Lutembacher.—p. 148.
19 *French Sprochetosis. N. Fiessinger.—p. 156.
20 Paratyphoid with Epilepsy. Pagniez and Vallery-Radot.—p. 179.
21 Spirochetoses. R. Dujarric de la Rivière.—p. 184.

15. **Soldier's Gastritis with Hyperchlorhydria.**—Loeper and Verpy have encountered seventy-two cases of this type among 135 cases of dyspepsia in soldiers. The symptoms indicate actual gastritis, the result of repeated functional hyperstimulation. Restriction to a nonirritating diet, milk, potatoes and sugar, aids in recuperation. Solutions of sugar are soothing, they induce by their concentration a mucous exudation, and they supply calories. The highly sweetened diet recommended in cases of gastric ulcer is particularly useful here, as it tends to reduce gastric secretion. Among the active measures, emptying the stomach and rinsing it with weak solutions of bicarbonate are effectual, also ingestion half an hour before meals of some alkaline solution, phosphates, sulphates, with sodium citrate. Also a suspension of bismuth carbonate taken fasting.

16. **Central Neurofibromatosis.**—Bilateral central deafness is common with this disease; Henschen declares that there are always two neuroma on the eighth pair of nerves. This was the case in the sixteen instances he has compiled, but in the family here described only the father presents this bilateral deafness. The two sons are deaf only on one side. One son of 32 has a neurofibroma on the optic nerve and retina, visible with the ophthalmoscope since the age of 7. The brother died at 18 and the father at 31.

17. **Paraplegia After Wounds of Spine with Intact Dura.**—Fifteen cases are described of organic paraplegia following a war wound of the spine, but in which the dura was found intact. The points which distinguish between the set of symptoms from total section of the cord and those from a focal lesion are an extensive plantar skin reflex on both or even on one side, conservation of sensibility over an area, even if quite limited, and pain when the thigh is flexed at the hip. Lumbar puncture shows when there is subarachnoidal hemorrhage.

19. **French Spirochetosis.**—The clinical picture may resemble that of catarrhal jaundice or of meningitis with myalgia and nausea, the symptoms subsiding after lumbar puncture, or it may appear as war nephritis, trench foot, or as an infectious disease of unknown nature. A. Pettit was the first to insist that the spirochete involved is not identical with Inada's icterohemorrhagic spirochete in Japan. The spirocheturia with the latter appears only after defervescence, not until after the first week, while in the French spirochetosis, spirocheturia was pronounced from the first to the fourth day in the Lorient epidemic. In the sporadic cases the spirocheturia is tardy. The French spirochete is also longer, with more twists, and guinea-pigs seem absolutely immune to it. The serum of patients contains no immunisins against the Japanese spirochete. The French spirochetosis is essentially polymorphous, and includes undoubtedly a number of pyrexias of hitherto unknown origin. It is possible that trench foot belongs in another category, but at present it seems to fit into this elastic frame.

Archives Médicales Belges, Paris

May, 1918, **71**, No. 5

22 Dysentery in 1917 in Belgian Army. P. Nolf and others.—p. 521.
23 Concussion Psychoses. H. Hoven.—p. 540.
24 *Pneumatic Mobilization of Joints. Loveday and Stouffs.—p. 548.
25 *Visual Acuity and Military Service. E. Rasquin.—p. 564.
26 *Disability with Mutilation of Face and Jaws. F. Watry.—p. 583.
27 Psychogenous Motor Psychoses. M. Molhant.—p. 591.

24. **Pneumatic Mobilization of Stiff Joints.**—Eighteen illustrations show the apparatus and the method of use for stiff joints. The principle is the application of pressure by a rubber bag alternately inflated and collapsed by air from a pump worked by an electric motor. The motor is connected with iron piping which has manifold outlets with pinch-cocks at regular intervals, the inflatable bags being connected with these branching tubes. All are inflated simultaneously with the compressed air, for about a minute, and the joints thus get a succession of small efforts at mobilization which aggregate in time enough force to correct the ankylosis. This principle was first applied for massage. It is accomplishing results in the line of mobilization beyond the highest anticipations, it is said, not only for knees, wrists and fingers but for constriction of the jaws, and for the elbow, talipes varus and equinus, etc. Continuous traction accomplishes the same purpose, but the soft parts are rendered anemic in the process, blood and lymph are expelled, and conditions are not favorable for recuperation of function. With the rapid alternating application of force and its release, the soft parts undergo a constant massage as the muscles repeatedly stretch and retract. One unexpected advantage of the method is that it shows up factitious ankylosis. The sittings are given every day or twice a day.

25. **Visual Acuity in Soldiers.**—Rasquin discusses from the military standpoint the evaluation of the disability from reduction of visual acuity.

26. War Wounds of Jaws and Face.—Watry discusses the mutilations of jaws and face from the same standpoint of military disability and reduction of the earning capacity.

Bulletin de l'Académie de Médecine, Paris

July 23, 1918, **80**, No. 29

28 *Arteriovenous Aneurysm. L. Sencert.—p. 114.
29 *Hemoptysis after War Wounds of Chest. Courtois-Suffit.—p. 116.

28. Subclavian Arteriovenous Aneurysm.—Sencert reports the complete functional recovery after resection of an arteriovenous aneurysm in the subclavian vessels. In order to reach it, he temporarily disarticulated the clavicle.

29. Hemoptysis After War Wounds of Chest.—Courtois-Suffit refers to the hemorrhages which occur after a long interval and display a tendency to recurrence after a war wound of the chest. In one of the four cases summarized, the interval was thirty months. Nothing can be found in any of the cases suspicious of tuberculosis, and the recurring hemoptysis is not accompanied by any impairment in the general health. Tuberculosis is proving extremely rare as a complication of war wounds of the chest. He cites seven other hospital physicians, besides himself, who have never encountered an instance of it. The war wound, especially when a foreign body is left in the tissues, may keep up a latent inflammatory process which may bleed at times.

Bulletins de la Société Médicale des Hôpitaux de Paris

May 10, 1918, **42**, No. 16

30 *Gangrene of Uvula in Purpura. L. Galliard.—p. 435.
31 *Lethargic Encephalitis. Lortat-Jacob and Hallez.—p. 439.
32 *Meningitis. M. Beauchant, Baudoin and Dubois.—p. 444.
33 *Trauma and Tuberculosis. A. Lemierre and Lantuéjoul.—p. 449.

30. Gangrene in Purpura.—The purpura was relatively mild in the man of 49 but gangrene developed in the uvula and it sloughed off leaving only a stub. Bleeding from the gums had been the first symptom and the uvula was swollen. The physician ordered local treatment with diluted hydrogen peroxid. Netter has reported the cultivation of what seemed to be meningococci in the vesicles in a case of purpura in an infant, as also in several cases in adults, and others have reported gangrene in meningococcus purpuras. Some of the patients recovered without having been given serotherapy. In Elliot and Kaye's case, both feet had to be amputated.

31. Lethargic Encephalitis.—The woman of 49 was brought to the hospital because for a week she had not been able to keep awake, and she complained of feeling tired all the time, and there was ptosis of the eyelids. Three weeks before she had suffered for a week from severe headache. The lethargy, the tendency to catatonia and loss of pupil reflex to light gradually subsided in this order. The somnolency in this and similar cases seems to be a symptom of exhaustion, a phenomenon comparable to what occurs in the motor system in bulbar myasthenia.

32. Puncture of Ventricles in Meningitis.—The young aviator developed suddenly acute meningitis with violent delirium; serotherapy was pushed for a week without apparent benefit. Then, on account of the aggravation of the symptoms notwithstanding the specific serotherapy, both lateral ventricles were punctured, followed by injection of 10 c.c. of the specific serum in one ventricle and 5 c.c. in the other. Meningococci were found in the 15 c.c. of fluid aspirated from the first ventricle punctured. By the next day improvement was pronounced, and it continued without further setbacks except a subcutaneous abscess at the point where the scalp had been trephined for each puncture of the ventricle. Pure cultures of meningococci were derived from the pus, but recovery continued undisturbed. The facility with which the ventricles can be punctured always astonishes those who try it. In the case reported a fixation abscess had been induced, as this is deemed useful in grave meningitis, and it may have contributed to the favorable outcome.

33. Traumatism and Tuberculosis.—In two of the three cases of war wounds of the chest reported, a latent tuberculous process flared up, but in the third case a contusion of the chest was followed by development of acute pleurotuberculosis, almost at once, which seemed to be primary.

Presse Médicale, Paris

July 22, 1918, **26**, No. 41

34 *Access to Base of Neck in Front. R. Le Fort.—p. 373.
35 Papulous and Nodular Forms of Chancre. M. Ferrand.—p. 375.
36 Copper in Treatment of Streptococcus Lesions. A. Mauté.—p. 377.
37 *Osteomyelitis of the Spine. J. Luzoir.—p. 378.

July 25, 1918, **26**, No. 42

38 *Constipation in Men on Active Service. M. Labbé.—p. 385.
39 *Bimanual Percussion. O. Peyret.—p. 387.
40 Febrile Bilious Hemoglobinuria. F. Roux.—p. 390.

34. Access to the Mediastinum and Neck.—Le Fort analyzes the different methods that have been proposed for access to the cervicomediastinal space, at the base of the neck, and advocates what he calls the sternocleidocostal flap. The skin is incised along the median line for 10 or 12 cm. to the first intercostal space, and then at right angles to the first incision for 12 or 14 cm. along the intercostal space to the deltoid, thus forming an L. His illustrations show how this avoids mutilation while it affords ample access. By this means he was able to remove without mishap a shrapnel ball just above and back of the aorta which, for sixteen months, one surgeon after another had refused to remove. Except for temporary incision of the sternum—which is a spongy bone and consolidation afterward is rapid and sure—no bone, vessel, nerve or important muscle is injured in the least, the clavicle and its articulation and the sternomastoid being unmolested, while it gives ample access to the organs at the base of the neck, the entire upper mediastinum and the apex of the lung. The integral repair of the chest wall requires only suture of the intercostal space, of the pectoralis and the fibro-aponeurotic plane.

37. Acute Osteomyelitis of the Spine.—Luzoir summarizes some recent cases that have been published, emphasizing the vital importance of an early diagnosis. Kirmisson called attention in 1909 to the characteristic oblong shape of the swelling over the inflamed vertebrae, almost spindle shaped. In one of his four cases the swelling along the side of the spine reached from the scapula to the crest of the ilium. Another symptom is the manifest collateral circulation in the region. The temperature is subfebrile, and puncture brings pus with usually the *Staphylococcus aureus* in pure culture. The absence of any tendency to curvature of the spine and the presence of some focus of infection elsewhere aid in differentiating the acute osteomyelitis. In one of the cases cited the spinous processes of the eleventh and twelfth dorsal vertebrae were found denuded, with four perforations in the sacrolumbar aponeurosis. The focus was cleared out and cauterized with phenol neutralized at once with alcohol, and in less than two months the lesion had completely healed. In other cases a subacute, almost chronic course would suggest tuberculosis if it were not for the long outline which is in such contrast to the round Pott's lesion. In other cases the symptoms of septicemia predominate, suggesting typhoid or meningitis. In one such case the young man was being treated for typhoid until the casual discovery of the swelling in the lumbar region. The operation then came too late to save him. Only thorough examination in all cases of supposed typhoid would avert blunders of this kind. In a more recent case the grave general condition and signs of meningeal irritation pointed to meningitis, but the finding of staphylococci in the spinal fluid led to more careful examination of the spine and discovery of the acute osteomyelitis, with recovery after draining the spinal canal. The first symptoms in this case had been acute retention of urine, without discoverable cause, and pains in the spine.

38. Constipation in Men on Active Service.—The lack of fresh vegetables in the soldiers' rations at the front entails constipation. It may be simple or spastic, or of the atonic or toxic type, or with inflammation. The gravity of the latter groups shows that constipation should never be neglected, to ward off these more serious developments. In prophylaxis, efforts should be made to supply the soldiers with vegetables and fruits, fresh or dried. Labbé advises in the toxic form disinfection of the bowels by means of cultures of lactic and paralactic bacilli, calomel, benzonaphthol and

naphthol, used alternately. Liver extracts and bile extracts are useful to stimulate the liver and bowel functioning.

39. **Bimanual Percussion.**—Peyret gives illustrations of this means of determining the dulness characteristic of pulmonary tuberculosis. The two hands are not applied opposite each other but on radii from the common center being percussed. The palms are applied flat, one over the anterior margin of the clavicle at the middle of a line joining the bifurcation of the sternum with the outer point of the acromion above the head of the humerus. The other hand is placed on the spine of the scapula. A line is drawn to connect these points, passing over the shoulder and extending a few inches beyond them. This he calls the *ligne directrice* as the percussion is applied along this line. He devotes nearly nine columns to describing the exact technic and the information to be derived from the percussion.

Revue Médicale de la Suisse Romande, Geneva

July, 1918, **38**, No. 7

41 *Pneumococcemia in Children. D'Espine and Reh.—p. 413; Turrettini.—p. 436.
42 *Mechanism of Conjugated Deviation of Eyes and Rotation of Head in Hemiplegia. L. Bard.—p. 423.
43 Carbonated Baths for Intermittent Claudication. E. de La Harpe.—p. 429.
44 *Imperforate Anus. Veyrassat.—p. 433.

41. **Pneumococcemia in Children.**—D'Espine and Reh state that the mortality was 3.7 per cent. in 374 cases of pneumonia in children in the seven years ending with 1917. Then came a series of 32 cases with 9 per cent. mortality. In one family there were 2 cases with early fatal empyema, although there did not seem to be mixed infection. In 9 cases there was pneumococcus meningitis with only one recovery. Netter has reported 17 cases of meningococcus meningitis with tardy pneumococcus invasion, all terminating fatally notwithstanding serotherapy. But D'Espine here relates a case of similar mixed infection with recovery under antimeningococcus serum treatment. One of the children had a pneumococcus sore throat and the pneumococci were found in the blood, but prompt recovery followed. A case is also described of febrile pneumococcemia in a girl of 3 without any manifest localization of the infection. The pneumococci were cultivated from the blood repeatedly during nearly a month, the fever keeping up with a typhoidal condition for three weeks; under six intravenous injections of a silver preparation the temperature finally dropped to normal.

Turrettini reports the case of an infant less than 5 months old who developed pneumonia, and the pneumococcus was found in the blood on repeated examinations during the following six months, with final complete recovery. The child increased in weight during the 180 days of its septicemia and occasional febrile temperature. The autovaccine from the persisting septicemia evidently attenuated the virulence of the pneumococci to such an extent that the growth of the child was scarcely interfered with.

42. **Rotation of Head and Eyes with Hemiplegia.**—Bard explains how the loss of the gyratory reflexes on the paralyzed side induces an automatic predominance of the gyrations in a determined direction, a sensorial hemi-agyria, as he calls it.

44. **Imperforate Anus.**—The rectum opened in the vagina but this was not discovered by any one, it is said, till the babe was 6 months old and wasting away from abdominal disturbances and general debility. The transplantation of the anus to the perineum was peculiarly difficult in such a young and restless child, but the operation was a perfect success. The child is now 5 years old and free from both retention and incontinence. After the operation the mother was instructed to dilate the anus occasionally with her finger.

Annali d'Igiene, Rome

May 31, 1918, **28**, No. 5

45 *Passage of Rabies Virus to Fetus. Lanfranchi and Lenzi.—p. 233.

June 30, 1918, **28**, No. 6

46 Mixed Infection in Glanders. M. Carpano.—p. 273.
47 *Monophagism, Pellagra and Scurvy. G. Volpino.—p. 280. Cont'n.
48 *Immunity of Fowls and Pigeons to Anthrax. C. Sarti.—p. 291. Commenced in No. 5, p. 226.
49 The Prevailing Three-Day Fever Epidemic. G. Sampietro.—p. 300.

45. **Passage of Rabies Through Placenta to Fetus.**—Lanfranchi and Lenzi report the case of a gravid bitch that had succumbed to rabies at term. Rabbits inoculated with medulla tissue from the mother and from the fetuses all died with symptoms of rabies.

47. **One-Sided Diet, Pellagra and Scurvy.**—Volpino has been studying deficiency diseases for years, and here describes his extensive experimental research and compares the results with those that have been reported by others. Among the experiences reported was the finding that pellagrins respond with a pronounced local and general reaction to injection of extracts of spoiled and sound maize. Similar series reported by others bring the total to 136 positive and eleven dubious or negative responses in 147 pellagrins, while positive responses were obtained only in thirty-three of 130 nonpellagrins. He regards these findings as testifying to sensitization of the pellagrins. The article is to be continued.

48. **Immunity of Fowls to Anthrax.**—Sarti inoculated hens and pigeons with the anthrax virus subcutaneously, by the vein or in the anterior chamber. The fowls proved to be immune even to large doses of the virus, but a few of the pigeons developed anthrax septicemia. Study of the blood and other factors involved shows that several factors evidently cooperate in this natural immunity. The ferments in the blood serum sensitize the micro-organisms so that they fall easy prey to the phagocytes. Fasting reduces the defensive forces and may practically suspend the immunity.

Pediatria, Naples

July, 1918, **26**, No. 7

50 *Roentgen Examination of Child's Chest. F. P. Sgobbo.—p. 385.
51 *Vaccine Prophylaxis of Scarlet Fever. G. Caronia.—p. 406.
52 *Diphtheria Bacilli Carriers. S. Cannata.—p. 414.

50. **Roentgen Examination of Chest in Children of Different Ages.**—Sgobbo examined eighteen boys and twelve girls from families of working men; only 20 per cent., including the supposedly healthy, gave normal findings in the lymphatic glands of the mediastinum and lung. In those with pathologic antecedents of any kind, the findings were always positive. It is possible that some of the glandular lesions may have been the result of other than tuberculous processes.

51. **Vaccine Prophylaxis of Scarlet Fever.**—Caronia and Di Cristina's previous work in this line has been duly chronicled in these columns. Di Cristina makes the vaccine from an extract of the scales, an antigen having been found in them which seems to be able to confer permanent immunity. He makes the vaccine by dissolving out the antibodies, soaking the scales in serum from convalescents. Subcutaneous injection of this vaccine induces the production of a specific amboceptor for the alcoholic extract of the desquamated scales. This confirmed that the reaction observed is not a simple reaction of the lipoids contained in the scales, but is also due to the presence of antigens in the true sense of the word. Children from 2 to 9 years old, treated with the vaccine until the immunity reaction appeared, in close contact with scarlet fever patients or with peeling convalescents, never developed scarlet fever. These experiences substantiate that the branny scales are the last stronghold of the causal germs in the organism. They further demonstrate the feasibility of the biologic differential test by this means, and also of effectual prophylaxis and possibly of treatment.

The Clinica Pediatrica at Naples consists merely of two large contiguous halls, each containing ten beds. One of these wards is given up to infants, the other to the larger children. There are no provisions for isolation, and not even for observation, so that when a recent arrival proved to have scarlet fever, its epidemic spread seemed inevitable. One of the children in the ward soon presented symptoms of the disease, and all the other children in the ward were injected with the scale vaccine. He also injected the vaccine in some children in private families when one had developed scarlet fever. None of the twenty-three children thus treated developed the disease, and only two, both feeble infants under 2 years old, presented a few symptoms indicating an abortive type of infection. Possibly these infants had been injected after infection was already under way. The immunization of

the vaccinated children was rendered apparent by the deviation of complement test. He injected 1 c.c. of the vaccine on three alternate or consecutive days. The two primary cases of scarlet fever remained in the ward throughout their disease and desquamation, but no other cases developed.

52. **Diphtheria Bacilli Carriers.**—Cannata compares a number of recent publications on this subject. He had to stamp out an incipient epidemic of diphtheria in a battalion in active service. As bacteriologic examination of the 1,200 men was out of the question under the circumstances, he swabbed the pharyngeal mucosa of all the men with iodized glycerin, and no further cases developed. Smears from the throat of 250 later showed the bacilli in only one case. Schiötz noticed that children with a staphylococcus sore throat placed by mistake in the diphtheria ward never contracted diphtheria. He accepted this as a suggestion to apply cultures of the staphylococcus in local treatment of the pharynx, and has reported excellent results. Ten other writers have published favorable results confirming the efficacy of this antagonistic bacterial treatment. They spray the nose and nasopharynx with eighteen or twenty-four hour bouillon cultures of the *Staphylococcus aureus*, and only a few have reported disappointing results. Lactic acid bacilli; pyocyanase; a diphtheria vaccine, and desiccated horse serum previously treated with cultures of diphtheria bacilli have also been used. With the latter method no further bacilli were found after twenty-four hours in the thirty-five cases tested.

Archivos Españoles de Enf. del Ap. Digestivo, Madrid

July, 1918, **1**, No. 7

53 Innervation of Digestive Apparatus. J. Vilato.—p. 289.
54 Necropsy with Hematemesis in Syphilitic. Gallart.—p. 309.

Brazil-Medico, Rio de Janeiro

July 6, 1918, **32**, No. 27

55 Flagellate Parasites. (Opalina Bras. n. sp.) Pinto—p. 209.
56 Internal Secretions and Pediatrics. A. Hymanson (New York). —p. 209. Concluded in No. 28, p. 217.

Prensa Medica Argentina, Buenos Aires

July 10, 1918, **5**, No. 4

57 *Joint Manifestations of Tardy Inherited Syphilis. M. R. Castex and R. Denis.—p. 37. Commenced in No. 1, p. 1.
58 *Rectal Medication in Syphilis. C. A. Castaño.—p. 42.
59 Tetanus and Industrial Accident Insurance. L. Bard.—p. 42.

57. **Joint Manifestations of Tardy Inherited Syphilis.**—Castex and Denis report in detail a large number of cases which demonstrate that tardy inherited syphilis is able to induce a clinical picture deceptively resembling that of acute polyarticular rheumatism. If the causal syphilis is overlooked, these cases may degenerate into chronic and absolutely incurable conditions, simulating ordinary chronic rheumatism. In differentiating the syphilitic origin, other members of the family should be examined for stigmata of syphilis, and the personal, familial and inherited antecedents investigated with minute care. In any event, they advise vigorous treatment as for syphilis, as it can never do harm while it is the only means to ward off irreparable lesions. The most common forms of the tardy joint manifestations of inherited syphilis simulate white swelling and hydrarthrosis, usually affecting the knee or hip joint. They may subside completely under specific treatment in the early stages. The mode of onset and the progress are important points in differentiation, as also the exclusion of tuberculosis and rheumatism. The long serial article is profusely illustrated.

58. **Rectal Treatment of Syphilis.**—Castaño states that when circumstances render injections impracticable, he has obtained excellent results by administering mercurial treatment by way of the rectum. In his several years of experience with this technic he has never had any inconveniences from it. Farini of Buenos Aires has even administered both mercury and arsphenamin by this route, with surprisingly good results. In some of Castaño's cases the patients developed stomatitis in a few days, confirming the absorption of the mercury. He administers it in a coco butter suppository, one on retiring, suspending the treatment for three or four weeks after the suppositories have been administered for twenty days, then resuming the treatment again. When the patient has bad veins, he prefers to administer neo-arsphenamin by the rectum, instilling it slowly and keeping the patient reclining for a time. He uses the same doses with this as for intravenous injection.

Revista Argentina de Obst. y Ginecologia, Buenos Aires

March-April, 1918, **2**, No. 2

60 *Acute Dilatation of the Stomach. J. Iribarne.—p. 121.
61 *Inaccessible Vesico-Vaginal Fistulas. J. C. Ahumada.—p. 137.
62 Extraperitoneal Cesarean Section. T. A. Chamborro.—p. 149.
63 *Cervical Embryotomy. J. A. Beruti.—p. 159.
64 Anteversion and Retroversion of Pelvis. E. A. Boero.—p. 172.
65 Technic for Classic Cesarean Section. N. Fernandez.—p. 175.

60. **Acute Postpartum Dilatation of the Stomach.**—Iribarne is convinced that this is of more frequent occurrence than generally supposed, but often escapes recognition. P. Ramos could find only seventeen cases on record during the nine years that had elapsed since Audibert reported the first case in 1907, but during the two years since, six cases have been encountered in Argentina alone. Iribarne reports an exceptionally severe case in a secundipara. The delivery of a normal child had been spontaneous and expeditious, and the general condition was good, but about twenty minutes after expulsion of the after-birth there was slight hemorrhage. The midwife injected ergot and camphorated oil, and massaged the uterus, but the slight hemorrhage still persisted. By the end of the hour the pulse was fast and small, and the woman complained of feeling suffocated, and there was much pain. The pallor was extreme, but the uterus had contracted well and the hemorrhage had practically ceased. Iribarne injected saline subcutaneously and by the vein, and injected a pituitary extract. The general condition was growing rapidly worse, the pain and sense of oppression intense, the pulse 150 and almost imperceptible, although the conditions in the genital sphere were physiologic. The woman's expression of distress increased, the pulse became 160 and 170, and then became totally imperceptible. There was no vomiting or thirst, but the bulging of the stomach confirmed the suspicion of acute dilatation of the stomach, and on turning the woman into the prone position, with the mouth open, there was a rush of gases from the stomach and rectum, followed by vomiting and great relief. But the pulse was still imperceptible, and the woman was chilly. Pituitary extract was injected anew, hoping to act on the musculature of the stomach and on the heart. The woman felt relieved, but was unable to lie prone and was turned on her back; oxygen was administered, with saline, epinephrin, caffein and strychnin, while hot water bottles were packed around her and she was rubbed with alcohol. Then the oppression and suffocation returned, as severe as before, but were relieved again by making the woman lie prone. An attempt at lavage of the stomach was then made, but the woman stopped breathing as the tube was introduced into the esophagus, and her eyes rolled up. The tube was withdrawn and ether was injected, and the skin rubbed vigorously, and she revived but the condition was still very grave. Pituitary extract was given and the woman turned on her stomach, which was followed by belching of gases and vomiting. From 10 p. m. to 2 a. m. they were thus working over her, the pulse absolutely imperceptible throughout. Then the pulse began to be felt and by 2:30 the condition was no longer alarming, and recovery proceeded although there was a tendency to gastric intolerance and lassitude for some weeks.

Iribarne explains the mechanism of the arteriomesenteric occlusion which accompanies the dilatation of the stomach, and the cessation of the occlusion in the prone position. The woman should be turned to this position on the slightest suspicion of acute dilatation of the stomach. It does no harm in any event, whatever is the matter, while it is a life-saving measure with true arteriomesenteric occlusion of this kind.

61. **Treatment of Inaccessible Vesicovaginal Fistulas.**—The transvesical operation is the most logical because it goes direct to the fistula; it is the easiest technic, and the most effectual. Three cases are described which illustrate the advantages of this method.

63. **Embryotomy.**—Beruti's modified instrument consists of a curving spiral spring that is pushed through a stiff

cannula. The spiral spring curves of itself around the fetal neck, and the end can be drawn down and attached to a Gigli wire saw. The saw is drawn up by pulling the flexible wire spiral spring back into the cannula.

Revista de la Asociacion Medica Argentina, Buenos Aires

April, 1918, **28**, No. 161

66 *Pancreatic Infantilism. R. A. Bullrich.—p. 303.
67 *Cyst in the Prostate. E. Castaño.—p. 317.
68 Syphilis in Medical Diagnosis. R. P. Escalier.—p. 325.
69 Roentgen Therapy of Fibromas. J. Guardado.—p. 337.
70 Torticollis Tic. T. Martini and J. J. Berterini.—p. 349.
71 Mercurial Treatment of Children. J. C. Navarro.—p. 360.

66. **Pancreatic Infantilism.**—Bullrich reports a typical case of Byrom Bramwell's pancreatic infantilism, with the necropsy findings. The case was distinguished further by the patient's being a diabetic. Necropsy revealed that the trouble was not in the pancreas so much as in the thyroid and pituitary body. There were lesions in the pancreas but they were insignificant compared to those in the thyroid and pituitary body. The case was one therefore of pluriglandular derangement. He had been normal and well grown till about the age of 11 when he began to grow thin and at 16 had pronounced diabetes mellitus. Then came eight months of rebellious diarrhea. At the age of 20 he was intelligent but was only about 4 feet tall and weighed only 21 kg. The skin was very dry and wrinkled like that of an old man, and the urine contained from 38 to 45 per thousand sugar. The stools showed signs of pancreas deficiency. Death occurred suddenly in an epileptiform convulsion, with nothing to suggest diabetic acidosis.

67. **Prostatic Cysts.**—In the two cases which Castaño has encountered, the cyst was in carcinomatous degeneration. The one patient whose case is described with illustrations has been in good health during the nine months or more since the prostatectomy. Prophylactic radium therapy was applied systematically during the first six months.

Revista de Medicina y Cirugia, Havana

June 25, 1918, **22**, No. 12

72 *The Mammary Fluid in the Newly Born. J. F. Arteaga.—p. 323.

72. **The Mammary Fluid in the Newly Born.**—Arteaga investigated on fifty-two infants the fluid that could be expressed from the mammary glands, just after birth up to twelve days or nineteen days. The findings in 97 per cent. indicated that the fluid was of the nature of a secretion, a physiologic phenomenon, independent of sex, breast feeding, and the obstetric and pathologic antecedents of the mother. In some the secretion kept up for from twelve to sixty-two days, with an average of forty-three days. In another child it kept up for 128 days.

Revista de Medicina y Cirugia Practicas, Madrid

June 22, 1918, **121**, No. 1512

73 Experimental Research on the Secretory Innervation of the Thyroid. L. Asher and M. Bañuelos.—p. 353.

Revista Medica Cubana, Havana

June, 1918, **29**, No. 6

74 *Microbian Associations. J. A. Figueras.—p. 291.
75 Gastro-Intestinal Resections. Chavez and Yaniz.—p. 296.
76 Solid Tumors of Spermatic Cord. G. Pujadas.—p. 299.

74. **Mixed Infections.**—Figueras reports a case of diphtheria in which streptococci were found in the smears, as well as diphtheria bacilli. The child was treated with both diphtheria antitoxin and an antistreptococcus serum, and also with serum from the renal vein of a goat as the condition was grave and the anuria persisted. Improvement was evident in a few hours, and under renewed injection of the goat serum and antistreptococcus serum the child recovered, the symptoms on the part of kidneys and myocardium gradually subsiding. There were no signs of serum sickness although 17,000 units of the antistreptococcus serum had been given besides the goat serum and the antitoxin. This child's brother had pure diphtheria at the same time, and was left a carrier until the tonsils were removed.

Revista Medica del Rosario, Argentina

July, 1918, **8**, No. 3

77 *Bacteriology of Blood in Puerperal Fever. E. Mazzini.—p. 171.
78 *Syphilitic Diabetes Insipidus. T. Fracassi.—p. 197.
79 *Visit to Lyons Maternity. J. B. Abalos.—p. 208.
80 *Brain Tumor in Girl of Twelve. C. Muniagurria.—p. 221.

77. **Bacteriologic Examination of the Blood in Puerperal Fever.**—Mazzini charts the bacteriologic findings in sixteen cases of puerperal fever, and emphasizes that clinical examination alone is not enough for the diagnosis and prognosis in this disease. Bacteriologic examination is indispensable not only for the blood but also for the lochia. The discovery of virulent bacteria and their increasing numbers on repeated examinations point to a fatal outcome. On the other hand, the diagnosis and prognosis cannot be based exclusively on negative bacteriologic findings. In his series, staphylococci or streptococci were found in the blood in 30 per cent. and half of these cases terminated fatally. In one of two cases with streptococci in the blood, the general condition was very grave but the numbers of streptococci grew constantly less and the woman recovered. The other seemed to have a mild case but the increasing numbers of streptococci in the blood warned of the impending fatal termination. The bacteriologic findings were positive in six of fifteen cases; typhoid bacilli were found in one fatal case, and, associated with staphylococci, in one woman who recovered. Jaundice was present in two cases with hemolytic streptococci but one of the two women recovered. He cites literature on the subject, mentioning Veit's experience that the prognosis was less unfavorable when gonococci were found with the streptococci or with colon bacilli.

78. **Syphilitic Diabetes Insipidus.**—Fracassi reviews the theories of defective or excessive pituitar, functioning as the cause of diabetes insipidus, and the theories based on hormones and trophic centers. They all seem to accept a single origin for all forms of diabetes insipidus, namely, some organic or functional disturbance in the pituitary body or polyuric brain centers. In a case described, the young man within three months developed polyuria up to 15 liters in the twenty-four hours. He had had three attacks of gonorrhea during the last seven years and an indurated chancre during the sixth year, but there had been no secondary manifestations. In the last month there had been lightning pains in the legs and quite recently a little fever. All the symptoms subsided under mercurial treatment, the amount of urine dropping from 10,000 to 6,500 c.c. in the course of eight daily intravenous mercurial injections. By the twentieth injection the total output of urine was only 2,000 c.c. Muniagurria has published a similar case of cure of diabetes insipidus under specific treatment.

79. **Obstetric Technical Points.**—Abalos gives an illustrated description of his visit to the Clinique Obstétricale in charge of Fabre at Lyons. One pavillion is devoted to "girl-mothers" and abortion cases. The morbidity has shown great improvement since the pregnant are given only douche baths, after the first all-over cleansing bath. Fabre believes in "mathematical obstetrics." He has found that the uterus grows each month 4 cm. By the end of the fourth month it should reach 14 cm. above the pubis, and with approaching term it should reach to about 32 cm. By weekly measurements, this normal upward progress can be traced. If it does not occur, the death of the fetus is probable. If the uterus reaches higher than 32 cm., hydramnios or twin gestation or contracted pelvis should be suspected. Fabre determines the measurements of the pelvis with a roentgen tube 50 cm. above or 20 cm. below the level of the pubis, the woman lying prone on a barred frame on which the shadow of the bones is outlined, each square representing 1 cm., the squares drawn as by Mercator's projection. Three illustrations show the system and the precision of the measurements thus obtained. Another illustration shows Fabre's dynamometer used in connection with the forceps to gage the force applied. A description is also given of a pneumatic device, strapped around the waist, to record the contractions of the uterus.

Fabre insists on isolation for every parturient harboring the streptococcus. He regards the turpentine fixation abscess

as the sovereign remedy for puerperal fever. It acts, he thinks, by inducing the production of antibodies from the irritation of the tissues, and it has besides a direct and elective action on the streptococcus. He uses turpentine also in prophylactic injections into the uterus in a 5 per thousand solution; after delivery, in a 10 per cent thousand solution. For cauterizing, he uses a 10 or 20 per cent. suspension in oil. For the fixation abscess, from 1 to 5 c.c. of pure turpentine. For artificial serum, he dissolves 1 gm. of turpentine in 1 gm. of alcohol and pours it into 200 gm. of artificial serum. The mortality has been reduced by 10 per cent. since this turpentine treatment has been systematically used. The total mortality in the ten years ending with 1913 has been 0.47 per cent. in 11,582 obstetric cases, and puerperal infection was responsible for less than half of this. The total morbidity dropped from 21.7 to 11.1 per cent. between 1906 and 1913.

80. **Brain Tumor.**—Three months of intense headache and vomiting with slight paresis of the arm in a girl of 12 were explained by an echinococcus cyst in the parietal lobe, invading the lateral ventricle. There was no eosinophilia.

Revista Sud-Americana de Endocrinologia, etc., Buenos Aires

June, 1918, **1**, No. 6

81 Fatal Gonococcus Endocarditis. C. Spada, Jr.—p. 145.

Semana Medica, Buenos Aires

May 16, 1918, **25**, No. 20

82 *Systematized Prophylaxis of Tuberculosis. N. Lozano and C. Mainini.—p. 551.
83 The Endocrine Function of the Ovary and the Mammary Secretion. F. A. C. Bazan.—p. 570.
84 *Test Precipitation of Alkaloids. J. A. Sanchez.—p. 571.
85 Infectious Diseases at Buenos Aires in Last Fifty Years. E. R. Coni.—p. 574.
86 *Treatment of Varicocele. O. Ivanissevich and H. Gregorini. —p. 575.

82. **Systematized Prophylaxis of Tuberculosis.**—This extensive article gives numerous statistical tables of the death rate from tuberculosis in the different districts throughout Argentina, classified by trades and professions and compared with other countries. On this basis are outlined the measures that are proposed in prophylaxis.

84. **Precipitation Test for Nicotin and Other Alkaloids.**—Sanchez' reagent is a sulphomolybdate. It is exceptionally sensitive and has a number of advantages, he says, over other reagents for testing organic bases, especially in dosage of nicotin in tobacco and in extracts. The technic is simple and is described in detail.

86. **Treatment of Varicocele.**—The anatomic and clinical cure is realized by exposing the left anterior spermatic vessels and severing all the spermatic veins in this bunch between ligatures. The return circulation is thus diverted to the posterior vessels and epigastric vein, a tributary of the external iliac. The method has been applied only in three clinical cases to date.

Siglo Medico, Madrid

July 20, 1918, **65**, No. 3371

87 Physicians and the State. J. F. Rodriguez.—p. 563.
88 *Epigastric Hernia plus Duodenal Ulcer. L. Urrutia.—p. 565.

88. **Epigastric Hernia Plus Double Duodenal Ulcer.**—Urrutia adds another to the list of cases on record in which an epigastric hernia was accompanied by ulceration in the digestive tract below. There were two ulcers in the duodenum, and each had bored through the wall. The perforation of each at a ten months' interval had induced a severe set of symptoms, but they had subsided spontaneously each time, the opening having evidently become obstructed after the acute phase was past. Conditions were corrected by resecting the segment of bowel involved and a gastro-enterostomy.

Vida Nueva, Havana

July, 1918, **10**, No. 7

89 Necessity for Introducing Systematic Prophylactic Treatment of Venereal Disease. J. E. Lopez-Silvero.—p. 201.
90 Diet in Nephritis. M. A. Serra.—p. 206.

Mededeelingen van den Burg. Geneesk. Dienst, Batavia

1918, No. 1

91 *Racial Cholesterol Metabolism. C. D. de Langen.—p. 1.
92 Retention of Nitrogen and Constant of Ambard in Inhabitants of Tropics. C. D. de Langen.—p. 36.

91. **Cholesterol Metabolism in the Tropics.**—De Langen discusses the pathology of races, particularly in regard to cholesterol metabolism. He investigated the latter in natives of Java, having been impressed by the rarity of gallstone cases at the polyclinic and surgical clinic in his charge. He found only one case on the records among the 15,000 patients at the hospital and this was not a native of the East Indies, while not a single instance was encountered among the 40,000 outpatients. The hospital at Sourabaja reports only seven cases among 67,500 inmates and outpatients. The figures from Semarang are eight cases in 47,000. In 1914, throughout the whole of Java, three cases of gallstones were recorded among the 58,021 hospital and outpatients. The cholesterol content of the blood of the natives is exceptionally low. This fact suggests a causal connection and disproves the theory that infection or stagnation is the prime factor in cholelithiasis. This assumption is the more plausible as the natives of the East Indies are subject to infections of the liver and biliary passages, and pregnancies there do not differ from pregnancies in other countries where gallstones are common. The few gallstones found in Java are usually of the rare pigmented type, such as is found with hemolytic jaundice. Pruritus seems also to be exceptionally rare among the natives, which in turn may be explained by the low cholesterol content of the blood. Diabetes and chronic nephritis, with which hypercholesterolemia is often associated, are likewise rare in Java. In conclusion de Langen tentatively recalls that beriberi is a disease locating in the nervous system—which is the most lipoid-rich tissue in the body—and hence study of beriberi may yet reveal that the vague notion of vitamins will merge into the problem of lipoid metabolism. Certain data he has accumulated sustain this hypothesis, and it is attractive further from a therapeutic point of view. *Chercher la physiologie c'est éclairer la pathologie.* The article is in parallel columns of Dutch and English.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

June 15, 1918, **2**, No. 24

93 The Separable Minimum in Testing Vision. C. O. Roelofs.—p. 1616.
94 Tuberculosis in Netherlands Asylums. F. J. Stuurman.—p. 1631.

June 22, 1918, **2**, No. 25

95 Farewell Address. C. A. Pekelharing.—p. 1680.
96 Origin of Porphyrins in the Intestinal Canal. I. Snapper.—p. 1692.
97 *Acute Pseudoleukemia. I. Van Esso.—p. 1698.

97. **Acute Pseudoleukemia.**—A previously healthy man of 31 developed fever. He died in four months during which there had been six recurring attacks of fever, not influenced by quinin or arsenic. The highest point of the fever was generally in the afternoon. The acute onset suggested an infectious disease, but the fever curve indicated a blood disease. By the second month, with 3 or 4 million reds there were only 1,530 whites; no nucleated cells; no polychromatophilia; 39 per cent. lymphocytes, and 51 per cent. neutrophils.

Hospitalstidende, Copenhagen

June 26, 1918, **61**, No. 26

98 *Diaphragmatic Hernia. V. Schaldemose.—p. 849.

July 3, 1918, **61**, No. 27

99 *Operation for Diaphragmatic Hernia. A. Helsted.—p. 881; Roentgen Findings. H. J. Panner.—p. 890.

98. **Suture for Diaphragmatic Hernia.** — Schaldemose remarks that a large proportion of diaphragmatic hernias cause no appreciable symptoms of any kind. When symptoms do develop they may be of the most diverse nature, depending on the organs which are most affected by pressure or by strangulation. Operative measures are the only treatment, and by way of the thorax seems the preferable route. It is difficult if not impossible to reduce the hernia from below and suture the opening.

99. **Diaphragmatic Hernia.**—Helsted's patient was a robust young man; a fall in getting out of a vehicle and a contusion of the neck not long after may have contributed to the hernia. The symptoms were those of periodically recurring partial incarceration of the stomach, with displacement of the heart and compression of the lung. The pains radiating to the left shoulder and down the outer side of the arm, plus the roentgen findings, differentiated the hernia. The roentgenograms all show the high curving convex line reaching, like a rainbow, from the median shadow to the left thorax wall. This line represents the air bubble of the stomach. Roentgenoscopy showed that this line moved up and down, synchronous with the movements of the right diaphragm, both in time and direction, although more sluggishly. He operated through the thorax with complete success. The suturing of the diaphragm was difficult on account of its constant movements. In another case of the kind he would try blocking the phrenic nerve on that side; this has been found effectual in keeping that half of the diaphragm quiet for several hours at a time. In the cases on record, catgut was used to suture the diaphragm, but he did not dare to trust to it and used fine silk, doubled. Five months later nothing abnormal can be discovered objectively, but the young man complains of palpitations and pain in the left chest, and inability to sleep lying down.

99. **Roentgen Findings with Diaphragmatic Hernia.**—Panner examined with the roentgen rays the two cases reported in the preceding two abstracts, and also a third case elsewhere. When several viscera are involved in the hernia, there may be several rainbow-like lines cast by the rounding tops of the air bubble in the different organs. The incurvation of the sides of the stomach—where it is grasped by the diaphragm—is also instructive. In the discussion that followed these three reports, read at a meeting of the Danish Surgical Association, Bartels described the conditions found in some cases in which necropsy had revealed an unsuspected diaphragmatic hernia. In one of the cases the sudden symptoms had suggested perforation of a gastric ulcer, but the roentgenoscopy findings seemed to indicate left pneumothorax. The lung cast scarcely any shadow on the left side, and a horizontal shadow seemed to indicate an effusion. The heart was displaced upward. The roentgen picture was typical for pneumothorax, except for the upward convex line arching across, but this was so indistinct in the roentgenogram that it was overlooked. The young man had been in the hospital for ten days when he complained of sudden intense pain in the chest, and died within a few minutes. Necropsy showed a hole in the diaphragm large enough to admit the fist; the viscera had slid through this opening: the stomach down to the pyloric region, the spleen and the greater omentum. There was no history of trauma in the case.

Hygiea, Stockholm

May 15, 1918, **80**, No. 9

100 *Tuberculosis Mortality at Stockholm. E. Lindhagen.—p. 497.
101 *The Exudative Diathesis. A. Lichtenstein.—p. 544.

June 16, 1918, **80**, No. 11

102 The New Era in the Study of Syphilis. G. Ahman.—p. 671.

100. **Tuberculosis Mortality at Stockholm.**—Lindhagen's analysis of the tuberculosis mortality at Stockholm during the last few decades shows that it is considerably higher than that of Christiania and Copenhagen. The decline in the mortality since 1881 has been only 39.3 per cent. while in Christiania it has been 43.7 per cent. and in Copenhagen 56.4. His tables show a remarkable decline in the general mortality at all ages under 60, the difference amounting to 66 per cent. for children under 1 year old and 77 and 70 per cent. for children of 1 to 5 and 5 to 10. The tuberculosis mortality in women was only two-thirds that of men. The mortality between the ages of 15 and 40, both sexes, has declined very little in the last twenty years or has even increased a little. Between the ages of 15 and 20 the tuberculosis death rate in women has increased by 18 per cent. while that of men has been reduced by 12 per cent.

101. **The Exudative Diathesis.**—Lichtenstein presents an able exposition of what is meant by the exudative diathesis and the measures required to combat it, with analysis of about seventy-three different European publications on the subject. He emphasizes that treatment must seek to prevent and cure the various symptoms, as the diathesis itself cannot be transformed by our efforts. Surgical and medical measures are called for with the exudative diathesis, as well as dietetic measures. Atropin has never proved satisfactory in his hands in treatment of the eczema, but it has been strikingly effectual in treatment of the tendency to asthma in some cases, while others did not seem to derive any benefit from it. Children with the exudative diathesis should be guarded against infections of all kinds with special care. The conception of the exudative diathesis represents progress in the insight it has afforded as to the influence of diet on the course of a diathesis. But we have taken only the first steps in the field thus opened up. All the means for research in biology, chemistry and pathology should be called to aid in seeking the pathogenesis of the diatheses, the therapeutics, the diagnosis of latent diatheses, and the nucleus for the diatheses in questions of heredity.

Ugeskrift for Læger, Copenhagen

July 4, 1918, **80**, No. 27

103 *Diabetes. V. Scheel.—p. 1039.
104 *Test for Albumin. Lilliendahl-Petersen.—p. 1054.
105 *Vaginal Sarcomas. E. Himmelstrup.—p. 1056.

103. **Pathology of Diabetes.**—Scheel remarks that as a general thing theories in regard to diabetes follow on practice, instead of practice being based on theoretical reasoning. The connection between high sugar content of the blood and diabetes is still a question; he reports a case in which diabetes developed in a man of 59, apparently from a trauma. The sugar content of the blood was 0.30 per cent. (0.08 to 0.10 is the normal range), but the urine showed less than 0.5 per cent. sugar and none at all when the blood sugar had been reduced to 0.17 per cent. on antidiabetic diet, not even when the carbohydrates were given freely up to 80 gm. a day. There were no evidences of acetonuria at any time. At first there was some disturbance in vision, but this subsided with the hyperglycemia. There was no albuminuria and the blood pressure was only slightly above normal. Experience has shown that the blood sugar and urine sugar may behave in diabetes with chronic interstitial nephritis just the same as in others free from nephritis. The permeability of the kidneys for sugar does not seem to be modified by kidney disease. The latest research, on the other hand, has confirmed the importance of disease of the pancreas as a factor in diabetes, and that hormones from the chromaffine system are likewise involved.

In discussing the formation of sugar from fat, he relates the case of a diabetic man of 35 who was in the hospital for a year and a half, and the metabolic findings were recorded each day. In one thirty-day period the intake of carbohydrates was 3,525 gm. and the output 5,925 gm.; the intake of albumin 262 gm.; the output of nitrogenous substances, 297 gm. No assumption to explain this seems plausible except that the excess of sugar was formed from fat.

104. **Quantitative Determination of Albumin.**—Petersen remarks that the reagents for the usual tests for albumin are difficult to obtain at present. He proposes what he asserts is an excellent substitute for Claudius' reagent, while it is inexpensive and available. Comparative tests with the Esbach and Claudius methods have demonstrated its reliability. The formula for the reagent is phosphomolybdic acid, 2 gm.; concentrated sulphuric acid, 6 gm.; kaolin, 6 gm., and distilled water to 400 gm. It is used like the Esbach reagent, but takes only six hours. He prefers for the test an ordinary centrifuge glass, graduated as for the Claudius test.

105. **Vaginal Sarcoma in Little Girl.**—Himmelstrup has found records of thirty-three cases of primary vaginal racemose sarcoma, like the case he describes in a girl of 4. The majority were in children under 3. Operative measures gave only brief respite, all the patients dying in a year or two after the first symptoms.